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OCTOBER—1907

MASSACHUSETTS AGRICULTURAL COLLEGE

American Bee Journal

THE AMERICAN BEE JOURNAL

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2d.—To protect and defend its members in their lawful rights.

3d.—To enforce laws against the adulteration of honey.

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The A. I. Root Company, Medina, Ohio

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Freeport, Ill., June 11, 1907.

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Yours very truly,
(Signed) John H. Bamberger.

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GEORGE W. YORK, Editor | **CHICAGO, ILL., OCTOBER, 1907** | **Vol. XLVII—No. 30**

National Convention at Harrisburg

The last two days of this month (October 30 and 31) will be held the annual convention of the National Bee-Keepers' Association, at Harrisburg, Pa. It has been many years since it met in Pennsylvania, where now there is a strong State organization of bee-keepers.

From Chicago there will be a 10-day rate at that time of $17 for the round-trip, or a 15-day rate of $22.25, to the Jamestown Exposition (Norfolk, Va.), with stop-over privilege at Harrisburg to attend the convention. With such low rates and generous privileges, it seems there should be a large number of bee-keepers who would avail themselves of the opportunity to attend the National convention of bee-keepers this year. Pennsylvania will make every effort to have a successful meeting.

We hope that as many as possible of the readers of the American Bee-Journal will plan to go to Harrisburg. It is a little less than a month now before the convention. We are hoping to be present, but just now we can not say definitely, as there are circumstances over which we have no control that may prevent our attendance this year.

The Honey Market for 1907

It is a mistake to hold on to honey until too late, expecting an advance in price that is never to come. On the other hand it is a mistake to let it go for any old price that may be offered, said offering being based upon the fact that the buyer who makes the offer has already bought at a very low figure. The amount bought at that low figure may be merely a few pounds produced by some ignorant bee-owner with few colonies and less experience, and it is hardly the right thing that such a transaction should be considered as settling the price.

It is now very evident that the crop is short, and there is no good reason why the price should not be correspondingly long. Even if the crop were of the usual amount the upward tendency of all prices in general demand that honey should also advance. Taking both conditions together, scarcity of the article and a general rise in prices, it certainly looks as if honey should be honey this year. While there is a gratifying advance in quotations in some cities, in others there seems a tendency to keep somewhat nearer old prices. The bee-keeper will, of course, consider difference in prices, as also distance to different markets, and be governed accordingly. Above all, he should look out for his home market, and not be in haste to sacrifice the fruit of his season's labor.

Beginners Should Study Foul Brood

The beginner who fails to read up on the subject of foul brood, thinking that it is time enough to do so when the disease appears in his own apiary, is making a serious mistake. After a time he finds something unusual in one or more of his colonies, and is frantic lest it be foul brood, whereas if he had informed himself he might have been saved needless anxiety, since there may be nothing in the case to excite needless alarm. Or, if the disease has really appeared, it is of first importance that he be informed in advance, ready intelligently to identify it, and to know at least something about what should be done, instead of being thrown into a panic wasting precious days before finding out what to do.

Again, the insidious enemy may make its appearance unsuspectedly, and be spread throughout the whole apiary before he suspects it, whereas a little reading would have enabled him to spot it while it was still confined to a single colony, allowing him to take precautionary measures to prevent its further spread.

As a practical authority on the subject, no one stands higher than the Canadian expert, Wm. McEvoy. As his latest deliverance upon the subject, after his many years of rich experience in dealing with the pest in many apiaries, will be found an article on another page of this number, the said article being copied from the Canadian Bee Journal. Its reading is heartily commended to all who are as yet uninformed upon the subject. Those who are informed will probably read it anyhow.

New Way of Introducing Queens

The Alexander plan of introducing 2 or more queens into a colony may be equally used for the ordinary introduction of a single strange queen. It has the same advantage over the ordinary candy plan that the Abbott plan has, in that the colony is left queenless less than 12 hours; and Mr. Alexander claims in Gleanings that it is very much easier than the usual candy plan.

Dr. Miller's Double-Queen Plan

Dr. Miller writes that while waiting for Mr. Alexander to make known his plan of getting several queens into the same colony, he has been doing some experimenting on his own account, and has met with entire success in part of his trials. His plan is exceedingly simple:

Put into a provisioned cage 2 queens, put the cage into a queenless colony, and after 6 days' imprisonment let the queens out upon the combs. That's all. This takes considerably less of the bee-keeper's time than the Alexander plan, but takes much more of the bees' time. Moreover, it is doubtful if it is so safe. The queens with which he succeeded

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were 3 years old. He put into the same cage 2 queens that had been laying only a few days, and they showed fight. Possibly success might be obtained with any 2 queens, if, instead of being put in the same cage, they were put into 2 different cages and imprisoned in the same hive. Certainly there could be no fighting during the time of imprisonment in the cages, and at the end of that time they might be ready to be good to each other.

Attachment of Sections to Separators

For some reason it sometimes happens that a little bridge of wax is built between the separator and the sealed surface of a section. This is more likely to be the case if there is some crowding for room, which favors bar-combs in general. Once in a while a colony seems to have a special tendency in that direction, many of the sections in each of its supers being thus fastened to the separators, and it is not a bad plan, at the first convenient opportunity, to replace the queen of such a colony with a queen of better tendencies.

When this trouble exists, and the sections are taken out with no special care, the capping is sure to be pulled away, resulting in a "bleeding" section. To avoid this, before the sections are taken out of the super, cut through the bridge with a sharp knife having a thin blade. Still better, cut through with a heated blade which melts the wax.

Extracting-Combs on Till Close of Season

Years ago the Dadants stood pretty much alone in the practise of leaving extracting-combs on the hives till the close of the season. With the idea that more honey could thereby be obtained, in many cases honey was thrown out of the comb when little or none of it was sealed. Some claimed it could be ripened out of the hive as well as in. Whether that be correct or not, the fact was that it was not well-ripened in most cases, and the amount of unripe stuff thrown upon the market had an effect from which extracted honey suffers till the present. It seems to be conceded now that there is no real gain in the amount obtained by extracting before sealing; only loss in the quality of the honey. Even if it were just as well to extract one time as another, the matter of convenience should incline toward waiting till the rush of work at the bees is over. Artificial heat can make the combs even warmer than when just taken from the hives.

Comb Honey by Express

We have received he following in regard to shipping comb-honey by express:

EDITOR AMERICAN BEE JOURNAL:—

Ought we not to do something to make express company employes handle honey more carefully? If the sections are in regular shipping-cases, with glass fronts and hand-holes, why should honey arrive in a great big mess? I shipped a lot to New York, and 25 percent was smashed. Everybody knows, of course, with what keen sense of responsibility and most delicate feeling our trunks are dumped from the express-car on the truck! Why such a fragile article as honey should not be handled carefully, I really do not understand.

Let us be up and doing, to bring some pressure to bear upon the head men of the express companies, so that they will instruct their employes to exercise the proper care in handling other people's property. To patronize a concern, pay for transporting charges, and then have one's goods damaged and smashed, is an outrage. C. T. OHLINGER.

Angelica, N. Y.

This, of course, is a serious matter to bee-keepers who wish to send comb honey by express. But it is a difficult matter to ship comb honey safely if it is not properly protected or packed. It would seem that if the express companies accept comb honey, they ought to be held responsible for any damage to it while in their hands.

This is a matter that the Committee on Freight-Rates, of the National Bee-Keepers' Association, might well consider. Why not have it brought up at the Harrisburg convention, Oct. 30 and 31?

Two Queens or More in One Colony

A few months ago, the somewhat startling announcement was made in Gleanings that E. W. Alexander had succeeded in having in the same colony, not separated by excluder zinc, but with free access to each other, 2 or more laying queens. Mr. Alexander has at last made known the plan by which he succeeds in accomplishing this, which plan will be found on another page of this number. A hasty reading may make it seem to some that a good deal of time and labor is involved in the proceeding, but a careful study will make this appear a good deal less.

It would be premature to say just how successful others will be in carrying out the plan until it has been thoroughly tried. For such trial many will still have opportunity this fall. Of course, all uniting of weak colonies should have been done before this, but equally, of course, some colonies are likely still to be left that are not as strong as might be desired. One or more weaklings may have been left merely for the chance of wintering over their queens. If 2 such queens can be induced to live peaceably together, the chances of wintering over will be increased by the union of the colonies.

Let it be urged that whoever tries the plan should follow strictly the instructions given by Mr. Alexander. A slight deviation in a single particular, even if it seem of no consequence, may bring failure. Let it be noted that although it is only incidentally mentioned, the first step in the process—removing the queen and brood, and putting the bees in the box—is taken in the morning, giving from that time until sundown for the distress of the queenless bees to reach its climax.

If it turns out that Mr. Alexander's plan can be generally carried out with success, it is hard to estimate its importance. If nothing more could be gained than the wintering over of one or more extra queens in a colony, that alone would be an immense step in advance. But Mr. Alexander claims another advantage that many will estimate still more highly. He says he has never had a colony with 2 or more laying queens prepare to swarm. While some might not value this, there are others who would gladly double together every pair of colonies in the spring if they might be safe from all anxiety about swarming.

Producing Best Extracted Honey

In the Bee-Keepers' Review for August there is quite a little about producing well-ripened honey. On receipt of that copy, Mr. R. A. Burnett, who is perhaps the oldest honey dealer in Chicago, wrote us the following comment:

EDITOR YORK:—The first two articles in the Bee-Keepers' Review of August make the blood in the writer circulate with the freedom of youth. Just to think that the wise editor has reached the autumn of life before he knew what he describes in these words:

"It is then perfectly ripened and all sealed over, and has a body and flavor of which I never dreamed until I put this method into practice."

What practice? you may ask. It is that of letting the *bees* complete their sacrifice in ripening the honey in their homes.

Mr. Townsend has proved for himself that more honey than he can produce, of a perfect quality, is needed to supply those who once get a taste of such as he describes. The writer has maintained for many years that the greatest enemy of the bee-keepers is the bee-keeper who offers unripe honey for sale. If honey-producers will heed the prayer of Mr. E. D. Townsend, uttered in the last sentence of his article above mentioned, it will bring them money, and blessings. R. A. BURNETT.

Chicago, August 28th.

The particular statement to which Mr. Burnett refers is contained in this from Editor Hutchinson himself:

"In the frontispiece this month I am showing you a view of the Morey apiary. No honey has yet been taken off, but you can see that we are to get a fair crop, and by the time these lines greet the eyes of my readers, much of the extracting will have been done. You see, we have plenty of supers and combs or sheets of foundation, and when a colony is in need of more room it is given, but all of the honey is left on until the end of the season. It is then perfectly ripened and all sealed over, and has a body and flavor of which I never dreamed until I put this method into practice. The honey will be taken off with bee-escapes, and then warmed up artificially before it is extracted. One end of the honey-house is partitioned off, making a room 5x12 and six feet high. By means of an oil stove we can bring the temperature in this room up to 110 degrees, if we wish, and 95 is high enough. Honey warmed up arti-

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ficially to as high a degree as it will bear without softening the combs too much, can be extracted quicker and cleaner than honey as it usually comes from the bees. Another thing, there is no need of any hurry about it. Just have plenty of supers, and pile them up until the season is over, then take off the honey with bee-escapes, and extract it at your leisure. In this way, bee-keeping is robbed of much of its strenuousness. Of course, it is not absolutely necessary to leave on all the honey until the season is over. When the honey in a super is all sealed over, it may be removed, and such full supers may be stacked up in the house until we are ready to extract."

As the subject of producing only well-ripened extracted honey is such a vital one, not only to bee-keepers themselves, but also to the dealers in honey, we wish to make a few more extracts from that same copy of the Review. The following is written by Mr. E. D. Townsend, a leading Michigan bee-keeper:

"Grading Extracted Honey."

"For several years our extracted honey has been graded; that is, our early, white honey for table use, with our system of giving additional upper stories *on top*, any partly-full upper stories are on top at the close of the season, when we do our extracting. Of course, with this way of managing, especially as we try to have every upper story possible sealed, and finished, still, with all the precaution one can take along this line, with these 50-pound-capacity upper stories, there will be a good many partly-full upper stories at the close of the season, the best we can do. The way we manage to get our superior grade of honey that sells for one or 2 cents above the market price, is to take off all these partly-full upper stories, and extract them by themselves. As they are all on *top*, this is not much additional labor, and, in a good season, this first extracting will not amount to more than one-fourth the crop. We call this grade No. 1, as even this, our lowest grade, is superior to the ordinary honey on the market.

"Another way, where one has two extractors, and a little more time, is to set up two extractors, near together for convenience, then run all the partly-sealed combs through an extractor before uncapping. In this way, we get a larger percent of the superior grade of honey, but it is some more work. With this latter plan the unsealed honey is not of as good quality as our No. 1 mentioned above, and ought to go for some other purpose than table use. This plan of using two extractors, originated with me, and our whole crop at the Kalkaska County yard was handled this way during season of 1905.

"The reason for using two extractors is that the sealed combs of honey would get so cold standing around, waiting their turn, that it would be impossible to extract the honey unless it was returned to the bees to be warmed up. If one had artificial heat to apply in the latter case, it would work fine. Some of the slickest, cleanest, dryest combs I ever extracted were heated up artificially.

"Producing an Article that Enables the Producer to Set the Price.

"It will not be necessary to tell the experienced extracted honey producer that this honey, after being left on the hive clear through the season, then, having all the latest-gathered and unsealed honey taken away, and kept in a grade by itself, that we would be likely to get a fine article; more, *it would be the acme of perfection.* Isn't the system very simple? Just add a few more upper stories, keep giving the bees more comb-room clear through the season, then leave it as long as there is no danger of getting dark, or inferior, honey mixed with it, even if it is the last of August, if you have no fall flow, and I assure you, you will not regret it. You will have an article in a class by itself. To find its value, you do not have to look at a market quotation. *You* make *customers;* there is a *scramble* for it.

"Any one producing the ordinary article of honey one finds on the market, is not only losing much on his *own* crop, but is a very great damage to the fraternity at large. It is an undisputed fact, that every pound of good honey that is put on the market increases the demand for honey, while every pound of inferior honey decreases the demand. Can't you see how the land lays? Have you been producing just the *ordinary* honey in the past? Has the price been unsatisfactory, and the sales slow and far between? If so, there is a better way. The better way is so simple that there is not a particle of excuse, for not practicing it. Brother bee-keeper, let us produce just a little better honey during 1907 than we did in 1906."

The following are two of Mr. Hutchinson's editorials, taken from the same number of the Review, as they bear directly upon the subject under consideration:

"Get Good Prices for Your Honey and Don't Fool It Away.

"Last winter and spring were terribly hard on bees; the mortality was great. Then, on top of this, came an almost total failure of the white honey crop. The result is one of the shortest honey crops that this country has experienced in a long time.

"The National pure food law has cut out the glucose competition and largely removed the suspicion of adulteration.

"Coupled with all of the foregoing comes a general advance in the price of nearly all commodities, and bee-keepers certainly ought not to be so far behind the times as to neglect to take advantage of this opportunity; or, rather, to claim what is rightfully theirs. I do not advise the asking of an exorbitant price, even if it could be obtained; and it can't, as honey is a luxury (not a staple like bread, meat and potatoes) and few people will pay a fancy price for it.

"Under these circumstances, I think strictly first-class, white, extracted honey should bring 10 cents at wholesale, and the same grade of comb honey at least 16 cents. I believe any man having any of that grade of honey can secure those prices between now and January if he only holds on to his honey and takes the proper course to secure customers. I am already getting orders for my honey at that price; but there is occasionally a retail dealer who 'balks' at that price, saying his trade will not allow him to pay that figure. The prices at which honey has been retailed in the past will not allow such a price at wholesale, but retail prices must be advanced, and there never was an opportunity like the present for advancing them—'there is a reason.' Retail dealers must explain to their customers that bees died largely as the result of the late cold spring, that the clover harvest was almost a failure, and the result is a very short crop with the consequent advance in price. Call attention to the additional fact that the prices of nearly everything are advancing—people *know this,* and can comprehend why the prices of honey should also be advanced. A little careful explanation like this on the part of the retailer will enable him to put the price of honey where it ought to be under the circumstances."

"How to Get Good Prices."

"I have urged my readers to ask a good price for their honey, but simply *asking* is not enough. It is a very easy matter to ship off a crop of honey to some dealer and get the ordinary, ruling market price for it. If you wish to secure more than the market price, then some effort must be put forth. In the first place, there must be some *reason* why a good price shall be received. Take my own case, for instance; my honey is not ordinary honey, it is raspberry honey. Then it is thoroughly ripened—left on the hives weeks after it is capped over—and is thick, rich and delicious; and it is put up in bright, *new* 60-pound cans. It is impossible to produce an article superior to this. Having produced such a fine article, and put a proper price upon it, the next step is to let consumers know about it—advertise it and send out samples. I am now advertising it in three of the bee-journals. Of course this costs something, and if a man were to be in the business only a year it might not pay him, but a man can gradually build up a trade, and secure a class of customers that will buy his honey year after year without any advertising. I am now receiving orders from men who bought honey of me last year. They don't even ask for samples; they say, 'If your honey is like that of last year, you may send me so many cases,' and they send on the cash.

"Now, friends, isn't it worth while to have such a trade? To be able to sell your honey year after year to the same men—those who are willing to pay you from one to 2 cents a pound above market price, and send cash with the order, because they *know* that no finer honey can be produced, and that it is worth what you ask for it? The whole thing can be told in a few words: Produce honey of superior quality, and then let consumers know about it—the latter is fully as important as the first."

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Does the Queen Will the Egg-Sex?

Some maintain that the size of the cell decides automatically the sex of the egg laid in it. To this it is replied that if the cells are only ⅛ inch deep, the queen still lays the proper egg in the corresponding cell, as a general rule, only sometimes when drone-comb is in the way, and she does not desire to lay drone-eggs, she fills these drone-cells with fertilized, or worker, eggs; and so it is perhaps the general belief that the will of the queen decides whether each egg, as it is laid, shall be impregnated or not.

Dr. Miller, in Gleanings, declares he does not know which theory is correct, but says that in the few cases he has known of worker-eggs being laid in drone-cells the workers have always narrowed the mouths of the cells by making a heavy margin of wax, and wants to you, you know, why it is that if the sex of the egg depends upon the will of the queen she can not will to lay eggs in drone-cells without any bother of first narrowing the mouths of the cells.

Spring Stimulation of Brood-Rearing

Allen Latham says in the American Bee-Keeper:

"Few bee-keepers escape and fewer resist the temptation to practice brood-stimulation in spring. Some succeed apparently in their efforts and tell of their success, while many fail and say nothing about their failures. That brood-stimulation is a matter to be let alone—let severely alone—by the novice is acknowledged by all who are honest in their advice and to their own conviction."

In support of his belief he then relates how, during the past inclement spring, he gave special care to the bees in his home apiary, while 8 colonies a mile and a half away were left severely alone, and these neglected colonies came out stronger than the others. The neglected colonies were in larger hives than the others, and the question may be raised whether this item made no difference.

Get a Bee-Book—Good Advice

The editor of the Irish Bee Journal puts it in this wise: "The height of folly is to try making money by bees without a thoroughly reliable book of instructions." And that's just as true in this country as in Ireland. A man with only a single colony of bees can gain or save enough in a single season, oftentimes, to pay for a text-book on bee-keeping twice over. If you can not have both a bee-book and a bee-paper, by all means have the bee-book first, and then the periodical as soon after as you can.

Speaking of bee-books, that same Irish editor—Rev. J. G. Digges—has writtten the "Irish Bee-Guide," a book which has had high words of praise, and no one familiar with the bright scintillations of wit in the Irish Bee Journal could be easily persuaded that a book written by its editor would be very dull reading.

The National's Membership

It is still growing. On September 26 it had a total of 2471 members. Surely more than enough will come in before the Harrisburg convention, Oct. 30 and 31, to put it away over the 2500 mark mentioned some time ago. There are many of our readers who should become members at once. Send $1.00 to N. E. France, Platteville, Wis., which will pay a year's dues.

The National Bee-Keepers' Association is the greatest organization of bee-folks on this continent. If all will lend a hand, it will increase in power and usefulness as the years come and go. If you, dear reader, are not now a member, better join today.

Apiary of M. A. Salazar

Mr. W. H. Laws, of Beeville, Tex., sent us the following taken from a local newspaper, last June:

Yesterday morning M. A. Salazar hived the most remarkable swarm of bees, in some respects, that has ever been seen in the Falfurrias Country.

These bees—a big swarm—were actually building comb, storing honey, etc., among the branches of a tree near Mr. Salazar's house on West Rice Street. They were as busily at work as if they had been at home in a hive, and, contrary to the usual bee laws and regulations, were building comb and rearing brood as though intending to make their permanent home in the open light of day, and without the slightest protection from sun, wind and rain, except such as was afforded by the leaves of the tree.

They had been there long enough to have some sealed brood, and a larger quantity of larvæ and eggs, and in a short time would have been hatching out, had nothing happened to interfere with them, but Mr. Salazar decided to put them in a more up-to-date hive. No one knows where the swarm came from, but Mr. Salazar is certain they used good judgment in stopping near his large apiary.

Mr. Laws also kindly sent us the accompanying pictures which were on souvenir postal cards.

An Out-Door Colony

Apiary of M. A. Salazar

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Getting a Late Honey Crop

In a letter from Mr. C. P. Dadant, of Hamilton, Ill., dated Sept. 11, he wrote as follows:

"Our boys are now glad that they kept pushing the bees that looked so bad in the spring, for they are now being rewarded with one of the latest crops of honey we ever had. It was fully Aug. 20 before the bees started to store in good earnest, but we now feel sure of over 15,000 pounds of extracted honey, which is more than could be expected after such a backward season."

We hope that the foregoing experience will be general throughout the whole country. If it is, the bees will not only enter winter quarters well supplied with stores, but the fall crop of honey will go quite a distance toward helping to make up for the loss of the white honey crop. Then if we can have a good honey season next year, everything in beedom may be evened up all right.

Advertising Honey For Sale

We have received the following from Mr. Jay North, who offered 1,500 pounds of extracted honey for sale through a small advertisement one time in the American Bee Journal:

EDITOR YORK:—Please drop my advertisement from your next issue, as my clover honey is all sold. It went fast at the 10 cents a pound.

This is the first time I ever advertised my honey, and can say that I am well pleased with the results.

JAY NORTH.

If you have any good honey to sell, why not do as Mr. North did? An advertisement in the American Bee Journal should do as well for you.

Apiarian Exhibit of C. M. Nichols

The picture herewith shows the exhibit of bees, honey, etc., made by Mr. C. M. Nichols, at the recent Michigan State Fair at Detroit, and also at the West Michigan Fair held at Grand Rapids. We understand that he won a large share of the prizes and honors at both Fairs, and cash premiums amounting to over $200. Besides this he sold quite a lot of honey at fancy prices to the fair officials and others.

The Grand Rapids *Daily Herald* comments very interestingly on the exhibit made by Mr. Nichols, calling it the most fascinating and instructive exhibit to man, woman, and child. The display stood out in bold relief, its inviting rows of pure extracted honey in various sizes and shapes of glass bottles being attractive to the eye as well as to the appetite of those having a sweet tooth.

Mr. Nichols operates 5 bee-yards, which makes him one of the leading bee-keepers of Michigan. He exhibited bees in over 30 observation hives, besides having a large screen-covered cage which he entered and demonstrated the various manipulations of bees. This and many other features of his exhibit made it the most instructive and attractive on the grounds.

While the staging and care of such an exhibit as Mr. Nichols showed at the two Fairs referred to mean a lot of work and expense, we believe there is no better way in which to interest the public in honey. Surely there are no other exhibits that always attract so much attention as those of the apiary department of any Fair.

Mr. Caley's Cleome Apiary

When sending the picture shown on the front page this month, Mr. G. D. Caley, of Cozad, Neb., wrote as follows:

EDITOR YORK:—I have about 50 colonies of bees, but the plants are so large that they hide part of the hives. It is Rocky Mountain Bee-plant, or *Cleome integrifolia*. I think it is one of the best bee-plants we have in Nebraska. The bees work on it from daylight till dark. G. D. CALEY.

Mr. Caley attended the San Antonio convention of the National last November, when we had the pleasure of meeting him. He is also an old-time friend of the American Bee Journal and subscriber thereto. His Cleome or Rocky Mountain Bee-Plant apiary is certainly very attractive. Cleome is a beautiful plant, growing 4 or 5 feet high, and branching out several feet. We remember seeing it for the first time when attending the Denver meeting of the National several years ago. It is a rich honey-plant.

A Spanish Bee-Paper

For the second time, an attempt is being made to publish a bee-paper in Spain. This magaizne, entitled, "La Apicultura Espanola," is published at Barcelona, Spain, by Mr. Pons-Fabregues, who is an enthusiastic bee-keeper, and has already published several works on bees, translated from the French. We trust he may make a success of his new venture. July and August numbers are the first of this paper.

Mr. Strong at the Clarinda Fair

Mr. J. L. Strong, of Clarinda, Iowa, made an interesting exhibition at the Clarinda Fair recently. He had a cage made of screen-wire, in which he placed a colony of bees that he manipulated at various times during each day of the fair. As usual it was a very attractive demonstration. Mr. Strong is one of the best informed bee-keepers in Iowa, as well as perhaps its leading queen-breeder.

"Honey-Guides" for the Bees

The following is taken from the New York Christian Advocate, which may interest the younger members of the family, even if it is quite fanciful:

"Mother, what are those lines on the morning-glory for?"

"Those are honey-guides," said mother. "Each one of these lines runs into the center of the flower where the honey is. God put them there, so when a bee a-lights on a flower it can go right to the honey; and that is what the bees go into the flower for, you know—to get the honey in the center of the flower. Now go out and sit under the morning-

APIARIAN EXHIBIT OF C. M. NICHOLS, AT TWO MICHIGAN FAIRS

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glory vines and watch the bees for a little while, and see for yourself."

So Nellie ran out of the house. "Oh, mother!" she cried, "the bee did follow the line right up from the outside to the middle of the flower, and she got some funny yellow stuff on her, too."

"That was pollen," said mother; "the bee will take that home to feed the babies."

"Well, isn't that queer?" said Nellie, and she ran back to learn some more about the bees.

Great Big "Bee-Cave"

In the Australian Bee-Bulletin appears the following item:

"The biggest bee-hive in the world is in Kentucky, and is known as the "Mammoth Bee-hive." It is in reality a huge cave, the main compartment being 150 feet high, while the floor covers 10 acres in extent."

Wonder where our Australian contemporary came across that item. Every school-boy knows about the Mammoth Cave in Kentucky, but has any one ever heard of bees in it?

Bee-Keeping in Bermuda

The following relating to bee-keeping in Bermuda is copied from a letter sent to a friend of ours in New York State:

Bee-Keeping has been tried several times here in Bermuda during the last 20 years, the last time by a Mr. Morrison, who afterward became bee-inspecto to Sir Daniel Morris' Department in the West Indies; but all failed to make it pay, for in our damp climate the bees became sluggish and would not work. In Jamaica they have two crops called "logwood" and "mango," each of which is equivalent to our heather at home. Here in Bermuda we have a few scattered flowers all the year around.

T. J. HARRIS.

Public Gardens, Bermuda, Aug. 30.

British Bee-Keepers' Guide-Book

We have just received a copy of the new edition of "The British Bee-Keepers' Guide-Book," by Mr. Thos. Wm. Cowan, of London, England. It is almost entirely re-written, and has many new illustrations. The chapter on diseases of bees is perhaps the most complete that has yet been printed. This present edition consists of 19,000 copies, and is the 69th thousand. There are not only 4 extra lines on each page over the former editions, but there are 46 extra pages. A most excellent portrait of our good friend, the author, Mr. Cowan (who is also editor of the British Bee Journal) graces the page fronting the title-page. It is a book that should find a place in every bee-keeper's library. It is also a gem typographically and mechanically.

Pleased with the Monthly

We have received the following from an Iowa subscriber:

EDITOR AMERICAN BEE JOURNAL:—In regard to the change of the American Bee Journal from a weekly to a monthly, I will say that I subscribed for it just because it was a weekly at that time. I have noticed that many a hint came along weekly just when wanted, but if I had to either wait a month for the expected help or remember it a month my recollection of the matter would be a little indistinct. However, your July and August numbers are so attractive and full of good matter that the change may be for the better, just the same. I enclose you a list of bee-keepers whose names I have gathered, and hope they will all subscribe for your paper. Please send them sample copies and go after them, and keep after them.

Yours truly, JOHN EGENES.

Queen-Mating Station

At the Colorado convention, as reported in the American Bee-Keeper, an animated discussion took place regarding the establishment of a station to which virgin queens could be sent, to be there mated and returned. This scheme is carried out with satisfaction in Switzerland, and there is no reason why it might not be as successful in this country.

Central Tennessee Convention

The Central Tennessee Bee-Keepers' Association met at the rooms of the Nashville Board of Trade, on Saturday, Aug. 31, with about 25 members in attendance. Pres. J. M. Davis occupied the chair, and J. M. Buchanan was Secretary.

Mr. Leslie Martin read a very interesting paper on, "The Different Races of Bees," and Mr. Davis gave an instructive talk on "The Queen-Bee." The question-box was opened, and various topics of interest were discussed.

It was decided to make a nice exhibit of bees and bee-products at the Tennessee State Fair, Sept. 23 to 28. In connection with the exhibit will be held a daily bee-demonstration in a wire cage. Sept. 26 was named as "Bee-Keepers' Day" at the Fair.

Several new members were received, and the prospects for the success of the Association are very bright.

The convention adjourned to meet at the call of the Executive Committee.

J. M. BUCHANAN, *Sec.*

Northern Illinois Convention

The annual meeting of the Northern Illinois and Southern Wisconsin Bee-Keepers' Association will be held in Freeport, Ill., in the Supervisor's room in the Court House, on Tuesday, Oct. 15, 1907. All interested in bees are invited to attend. B. KENNEDY, *Sec.*

Conducted by LOUIS H. SCHOLL, New Braunfels, Tex.

Bulk or Chunk Honey, Etc.

MR. SCHOLL:—Are we not liable to get in a mess here by producing so largely chunk honey? Think what a fix one with a carload of the stuff would be in if the market here in the South should be more than supplied, and it must be shipped to a colder climate. Mr. Toepperwein says he is having a great deal of trouble, and advises bee-keepers to heat their honey to 150 degrees to prevent granulation. Now it seems to me a way might be devised, and laid before the bee-keepers of Texas, that would reduce this danger to a minimum, and cheapen the production of fancy comb honey at the same time.

I am thinking of fitting an apiary for producing comb honey without separators, so as to avoid so much outlay of cost on the start, time in cleaning separators, and getting plump sections—sections which to my views are superior to the much-praised plain section. I must confess, however, that I have had but little experience with comb honey, and that was so long ago that I am not certain as to facts. I am of the opinion that comb foundation put carefully in the center of sections and given only to good, strong colonies—better perhaps to those that have been started on a shallow set of extracting combs—would be completed, with few exceptions, so that they would crate as well as the plain sections, or it may be a little better. I would use the same kind of super that supply-dealers advise for shallow extracting combs, and practice Mr. Danzenbaker's method of moving sections to the center for finishing when the season was poor, but tier up when the season was good. It might be better to use a separator to every other section-holder, but I doubt it.

If a colony did not prove its ability to do first-class work, go up into every section at once, and complete in good shape, better let them give you the good, old-fashioned extracted honey which the pure food law is apt to make a market for, and you will then have a honey you can liquefy without trouble. If we do have many uncratable sections, the chunk-honey plan will catch them. If we could use for a small package a large-mouthed can or jar, so that a lit-

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tle heating around the sides when left in moderately hot water would enable the consumers to remove it, it would, it seems to me, be an excellent plan. Any one who has melted honey containing comb knows the effect on the flavor of it.

Mr. Toepperwein, to whom I have written concerning transporting comb honey, refers me to you as best prepared to furnish the desired information. I wish to know if it is much damaged when shipped a distance. What is the cost by freight to, say, Kansas? As I am planning to engage largely in the production of honey—chunk, section, and extracted—I would be glad to know which to give the lead. Your opinion will be highly valued. It seems to me to be a good plan to bring the subject up in your Department for discussion. "In the counsel of many there is wisdom." J. B. COLTON.

Olmito, Texas, July 22.

It does not seem to me that it is a serious matter to dispose of any quantity of good honey, either comb or extracted, provided it is rightly done. The greatest trouble that confronts us, as bee-keepers, is the marketing of our crop, and it is no other's fault save our own. We know how to produce a crop of honey year after year, if these are favorable, but that is generally all. We must have somebody else to market *our* honey, and that one gets *our* profits. We must make up our minds to pay more attention to *proper marketing of our own honey; to distribute it properly, and to get profitable returns for our honey and our efforts.*

Neither does it seem to me that there would then be any glut in the markets so that we could not profitably dispose of our bulk comb, or any other kind of honey. It is true that a good deal of the early honey from some points in southwest Texas did granulate this year on the market, but this can, should, and must be avoided. It can be done simply by heating the liquid honey to 150 degrees, Fahr., which does not hurt it in any way. Do not heat it hotter. Some honeys will stand it, but others will not. The honey in the comb will hardly granulate, and with this heated extracted honey poured over it, our bulk comb can safely be put on the market.

With the experience I have had in the production of section honey, lasting through 5 or 6 years, I would not now go back to that way of producing comb honey with its labor and expense, and the "fussing" to produce a saleable article that brings little more than the comb honey that is so easily produced in larger frames, with less work. And I would never attempt to produce section honey without separators. Neither would I think of using all those uncratable and unfinished sections for bulk comb honey. It would be far too expensive. Instead of rigging up for producing section honey as you propose, I would rig up for the production of bulk comb honey, using shallow extracting frame supers. Then, when there is no market for bulk comb (?), why, simply extract the combs, for there will surely *always* be a market for extracted honey. All unfinished combs not fit for bulk comb honey are extracted, and there is no loss. The profits, however, here in the South, will be greater than if you "fuss" with section honey.

The difference in the price is not large enough; besides, section honey in glass shipping-cases goes at double first-class freight, while comb-honey in cases, and cases in wooden cases, like extracted, goes at fourth-class rates.

Considering all this is why we are all producing bulk comb honey instead of sections, as we used to do.

De Bizzy Honey-Bee.

"No one's makin' speeches
'Cep de honey-bee.
De principles she teaches
Sounds right sensible to me.
She says: 'Keep lookin' foh de sweets
Dat's growin' everywhere;
An' if some no-'count weeds you meets
Pass on an' don't you care.'

"As she comes a-bringin'
De goods f'um 'roun' de farm.
She say: 'A little singin'
Ain't gwineter do no harm.'
I tells you, lots of us would get
Mo' joy f'um life if we
Kep' follerin' de example set
By de bizzy Honey-Bee."
—Washington Star.

Caucasian Bees vs. Italian Bees

I have not seen much pro and con about the Caucasian bees from the Southern bee-keepers. Surely they have them under test and will report from time to time. It has been said that we have much inferior honey in the South, and it is true in many locations, and can be attributed only to the fact that the bees do not give it the proper attention while evaporating and capping it. They quit it too soon, and the result is that it soon sours, or ferments. Also, granulation will begin sooner than it should.

It is the thin honey that gives us the most trouble, and the fact is that the bees do not give it a body. The black bees do not gather much of the thin or inferior honey, but other strains do, and it often gives them a lot of trouble. I have seen the Italian bees recap it many times, until cappings were ⅛ of an inch thick. This is all they seem to know to do to it, when the trouble was that they capped it too soon.

I have always found this fault in the Italian bees, that they are too hasty about capping their honey. If there is a check in the honey-flow for a few days, they will cap the honey and not give it the attention they should.

Cotton is becoming a great honey-plant here. It is yielding better each season. I can remember when it was considered only a pollen-plant. Now we get from 25 to 100 pounds of surplus honey per colony from it, and our bees winter on it. But its honey is thin, and soon ferments, and is not wholesome.

The Caucasian bees are giving this and other thin honey a good body. This fact is not due to season or locality, for in the same yards, side by side, the honey of the Italian colonies had soured when we got around to extracting, while that of the Caucasian was as fine honey as we ever produced, and shows no sign of souring nor granulating, and they gathered more of it, too. It has a heavy body, and the flavor is very much improved.

In a previous article I mentioned some of their good qualities, and at the same time I noticed the care they were giving their honey, but only mentioned that they gave me a surplus of a few pounds of nice comb honey. Now that I have tested them extensively, I send another report.

I might also add that the Caucasians have as large a brood-nest as other strains of bees, but better compacted. They are very quiet on their comb while handling them. They cap their brood and honey more evenly than other races, raise the caps about as the black bees do, and have a beautiful appearance. Also, they are great cell-builders. During the flow of our best honey, the Italians kept pace with them very well.

Crisp Co., Ga. J. J. WILDER.

Not Good Fall Prospects—Superseding Young Queens

I could not help having a feeling of regret come over me when I read the announcement in the June issue of the good old American Bee Journal, that in the future it would be issued only monthly. It seems to me there surely are bee-keepers enough in this broad land of ours to support a weekly journal, if they take the interest they should.

FALL PROSPECTS.

The prospects for fall honey are anything but good this year, and I expect that a good many will make the same mistake as last year—that is, extract too close, leaving the bees in almost destitute condition for winter. If we get a fall crop in this portion of the State it will be something very unexpected, indeed, for our main source for fall honey (broomweed) is a failure this year, and we would need to have one of those "unexpected" honey-flows if we get any more honey this year.

The above is not given for the true state of affairs throughout the State of Texas, but for this locality. You know Texas is a large State, and weather conditions vary considerably.

SUPERSEDURE OF YOUNG QUEENS.

We have had more new experience this year with the bees. Last fall one of my best colonies of bees commenced to supersede their queen, which was in her 4th year. But as fast as they would build and cap the cells, I would remove them to nuclei with the hope of getting a choice lot of queens from one of my best breeders, and I succeeded in getting 12 or 14 nice young queens, from these cells, to laying before the old queen died. Like most cells built in the natural way, the queens that hatched from them were large and well developed, and all proved to be good layers last spring. They are among my best colonies. Now here is the strange part of the proceedings to me: Some 5 or 6 of those young queens have al-

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ready been superseded by the bees before they were a year old. Whether this was accidental, or was caused from the peculiar season, I can not tell. Who will offer a suggestion? L. B. SMITH.

Rescue, Tex.

Rendering Combs into Beeswax

BY G. M. DOOLITTLE.

A correspondent writes thus: "My bees have black brood, or at least the inspector says they have, and I wish to try to cure them by the shaking-off process. This will leave me with a lot of old brood-combs to render into wax. Now I wish you would tell us through the columns of the American Bee Journal how I can best do this."

It would seem from the many articles given on this subject that no more should be necessary; yet I am aware that beginners are constantly entering our ranks, and for these, the articles in the papers during the past are not usually at their command.

There are different ways of rendering wax, the heat of the sun, that of steam, and hot water, being those of most common use. For cappings from combs and the general accumulation of odds and ends of comb from the apiary, the solar wax-extractor is the one that I use and would recommend. With it I have no trouble in securing from 98 to 100 percent of the wax in the material put into it. And as an ordinary mortal can make one of these extractors during a spare day or two during the winter, when the common run of bee-keepers are not pressed for time, no apiary should be without one of these extractors.

The steam wax-extractors I know very little about, except the smaller ones of the past, such as the "Swiss," etc. These did their work quite well, but were slow, and required a cost for fuel which is eliminated with the solar. But for a lot of old combs, filled more or less with cocoons, pollen, etc., I know of nothing better than boiling water in a caldron or other kettle fixed something as follows:

Instead of hanging the kettle over the fire as is usually done, take a measure of the kettle on the outside, a little way up from the bottom, and go to your blacksmith and tell him you wish a piece of old, heavy wagon-tire welded so that the inside shall represent your measure. To this you want three or four (the latter being preferable) square or round bars of iron welded, at equal distances apart, for four legs. These should be of suitable size to give strength enough to support the weight of the kettle and contents, and long enough to raise the kettle from 4 to 6 inches from the ground at its lowest point.

After getting the kettle-holder home, place 4 flat stones just under the surface of the ground where you wish the kettle to stand, at proper places, so that each leg will rest on one, having it at such a point or place as will be handy for all of the work done with such a kettle, such as heating water for many purposes, boiling food for stock, etc., for the smallest part for our iron friend will probably be the rendering of wax.

After once having the kettle fixed in this way, you will never go back to any of the old ways of "hanging" a kettle, if you are at all like the writer. Besides the kettle, you will want a sack made of burlap or some other stout, open cloth, which you are to fill with the old comb, stamping it in so as to get all in as compact a condition as possible.

Next take a piece of 4-inch soft-wood plank, or two pieces of 2-inch plank spiked together will answer, though not quite so good. Now, round one side of this, so it will fit the bottom of the kettle, leaving the other flat. To the flat side fasten (by cleats or otherwise) a standard of suitable length, which should be flattened at the top and have several holes bored in it. Then get a 3x4-inch scantling, or a suitable pole from the woods, and mortice through it near one end for the top of the standard you have made, boring a hole through it in an opposite direction for a pin or bolt to pass through it and the standard. Besides this you will want a log-chain, which is usually near at hand about all farm houses. Having these things we are ready to fill the kettle two-thirds full of water and start the fire under it. In doing this use only light fuel so as not to have a hot fire after the water boils; for, if otherwise, it would be too warm for agreeably working around it, and after considerable wax was in the water it might boil over.

Having the sack stamped full of the old combs, tie the mouth of it and put it in the boiling water. After allowing it to boil 3 or 4 minutes, with an old hoe press and squeeze the sack against the sides and bottom of the kettle, rolling it over each time as you press. The wax will rise with each pressing of the sack; and if the old comb is not all in the sack, you can soon raise the mouth of it out from the water, and after it has cooled a little so you can handle it, untie, fill up and re-tie again, and so on till all is in.

When all the old comb is in the sack, and has been worked with the hoe several times, fasten each end of the log-chain to the ears of the kettle, or, if the kettle has no ears, fasten on either side of the kettle-holder, while the middle of the chain is to be fastened to the short end of the scantling or pole. Now put the rounded plank end of the standard on the sack and sink it to the bottom of the kettle, when the top end is to be inserted in the mortise in the pole, and the pin or bolt put through the desired hole. Next, go to the long end of the pole or lever and see how you can make the wax rise by bearing down. When bearing down, sway the lever back and forth, and from side to side, thus liberating the wax. If you have your lever long enough, and things fixed as they should be, you will bring hundreds and thousands of pounds to bear on the sack, and thus have a better pressure than with any of the wax-presses made, as none of these, with which I am acquainted, can give a rocking pressure while squeezing.

After a little you will have reduced the bulk in the sack so you can again shake the debris down and re-tie the sack so that the plank end will cover the whole, when with another pressure with the rocking motion every last particle of wax can be brought out to rise on top of the water in the kettle. Being sure that the wax is all out, you can hang a weight on the lever and leave it. Don't dip off the wax unless you have lots of time, and consider it only fun to do so, for I assure you that the next morning you will find it all caked nicely on top of the water, when you can break it up and get it ready for a second melting and moulding, which all wax should have before being put on the market or for using in making foundation.

After taking off the wax, take out the sack, empty out the refuse and rinse and dry the sack, when it and the rest of the implements used in this rendering are to be stored away for future use.

I know the description of this seems quite long, but I believe that in practice it is the shortest known process to get out a large lot of wax from old comb, and has to its advantage that no large sum of money has to be paid out for a wax press or extractor. If you think the iron-kettle holder too expensive, set the kettle on three stones. If stones are used, they should first be subjected to heat, else they may fly to pieces and upset the wax.

Borodino, N. Y.

Syrup for Feeding Bees

BY OTTO LUHDORFF.

Many bee-keepers will have to feed their bees again. We hear often of sour honey in combs, of bees perishing during winter, and often people do not know what the cause of it is. If bees are short of stores, sugar syrup properly made is about as good as the best honey; but not properly made, as for instance is recommended in some cata-

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logues for many years, it may often cause disaster. A certain one has this:

"If you are careless enough to let your feeding go till late, use 4 parts sugar and 3 of water, and ¼ pint of vinegar, or 10 pounds of good honey, to the 100 pounds of syrup, to prevent granulation," etc.

I beg to make the following remarks concerning this recipe:

Most vinegar of bee-keepers is probably made at home by natural fermentation, and this same product is handled by many storekeepers. Such vinegars, if not pasteurized, contain generally small quantities of fungi which will cause later sour fermentation of the thin honey. Great quantities of commercial vinegar are made from wood by distillation, and these are healthy and safe, they contain no ferment. If the vinegar naturally fermented is heated up to 55 degrees Celsius, or about 131 degrees Fahrenheit, all fungi will be destroyed, and as long as no new fungi are formed the vinegar is healthy and safe.

The addition of vinegar is recommended to cause the cane-sugar to go over into an article similar to honey—in other words, to change the saccharose ($C_{12}H_{22}O_{11}$) into dextrose (+ $C_6H_{12}O_6$) and levulose (—$C_6H_{12}O_6$).

But we can accomplish this same result without the dangerous vinegar, and with absolute safety, if we take tartaric acid or citric acid in place of vinegar.

A proper and safe recipe is: 100 pounds best cane-sugar, 100 pounds water, and 1-10 pound tartaric acid or citric acid. This should be boiled slowly from 2 to 3 hours.

Late in the season the quantity of water may be reduced, leaving the other parts in the same proportion.

Visalia, Calif.

Wonderful Organs of the Bee

BY PROF. A. J. COOK.

We often refer to man as at the head of all God's creation, and I doubt not but this is true, only, however, as the greatest development of man—the brain—stands in our estimation as the highest part of the animal organism. Man is pre-eminent only in brain and hand. I am free to say that in variety of function the honey-bee stands first—ahead even of man himself. As function must have organs, and special development, so we are not surprised at the wonderful developments that we find in our study of the honey-bee.

The bee gathers honey and must have special organs, and does have marvelous development to do this work. We know how the bee can get honey from the deep flower-tubes, from a surface on which the nectar is thinly spread, and as easily, and more quickly, from a huge nectar-drop, such as is seen in the linden-bloom and in the figwort, and of course there must be, as we know that there is, a marvelous development of tongue and mouth organs to accomplish all of this. Man has learned, through the supremacy of his brain, to discount the bee in what he does—its range and reach. Yet man has not to depend upon his modified organs to do his marvels—he fashions the means. He makes his knife and chisel, while in the case of the bee the knife and chisel are a part of the bee herself.

The bee gathers propolis or bee-glue, and has her own cart as a part of her bodily equipment, and has not to make it of wood and iron. The same equipment is used also to carry the pollen, and other proteid food. In case of the pollen there are additions, like pockets—brushes, curiously modified hairs, all useful to collect and carry the pollen, which is the special and peculiar food-element of all bees. Indeed, we might almost describe the great family of bees as that family of insects that live wholly or largely on pollen.

But there is another feature of bees that is in some respects more interesting than all, as it concerns the formation of a very peculiar secretion—wax—and its manipulation to form comb. We should expect that this would call for extra modification of organs and parts. We know that comb is one of the most exquisite and delicate structures known to man, and so anything that concerns its origin and formation is, and must be, a subject of great interest.

Wax-Glands.

Glands are the organs of secretion. Our spittle comes from the salivary glands. The function of a gland is to take from the blood elements and form the secretion. The secretion is not in the blood, but its elements are, and the gland has the wonderful power to select, from the great nourishing fluid, just the substances that are needed to form the special secretion.

The special agents of the gland that do this work are the cells. There are in every considerable gland, thousands, often millions, of these little cells—the real workers—that do this important service. Cells are the most important part of plant or animal, as all the work of every kind performed in the body is done by the cells. We have in an egg—really the yolk, the real egg—an example of a cell. The blood discs or corpuscles are other illustrations, and the individuals of the entire branch of animals known as Protozoa, consist of a single cell. While almost all of these Protozoans are microscopic, and so very minute, there are some that can be seen without the magnifier. The very minute Sporozoan, that causes malaria, is one of these Protozoans, and so is just a cell, and so very small that we can only see it as it is magnified many thousand times.

The wax from which the incomparable comb is formed, comes from glands that are situated on the under side of the worker-bee, just back of the thorax. These are racemose glands, and are much like a bunch of grapes in appearance. Of course, the grapes, in this case, are very minute, and represent—or are little sacks, the walls of which are formed by the cells already described. The stems of the grapes, and the larger stems, are represented in the glands by ducts, or tubes which carry the secretion off. There are four of these glands on each side, and so there are formed eight wax-scales at a time.

I suppose that all glands have times of rest. In many cases we know that they are inactive at times. We know that our salivary glands are only active when we are eating, and the saliva or spittle is needed. Milk-glands are only active at times of lactation, and then it is proable that only a part of the cells are active, at any one time. It is curious about the wax-glands of bees. They would seem to be wholly under the control of the bee. When wax is needed, as when there is a lack of comb, and more is to be made, then most, if not all, of the bees are secreting the wax-scales. As in all cases that we know of, the action of glands is wholly involuntary, we may be pretty sure that wax-secretion is involuntary on the part of bees.

I have often wondered how it is that the bee has, or seems to have, control of this matter of wax-secretion. We all know that when the bees need much wax, they cluster in absolute quiet in the top of the hive. In case they have just swarmed—and this is usually the case when they stand in greatest need of comb, and so of wax—they have just filled their stomach—honey-stomach—to repletion with honey. I am inclined to the opinion that the full stomach, or surfeit of food, and the stay in all exercise, give the wax-secretion.

We all have just about so much energy. If we spend this energy in one way, we can not spend it in any other. If we fret and worry we can do less work; if our cattle are chased by dogs, the cows will lose materially in milk. I once milked a great shortcorn cow on my Owosso, Mich., farm, and secured 14 quarts of milk. She was a very large, heavy cow, in full flesh. The next two days I led her to the Michigan Agricultural College. I took two whole days for this, and went very slow, as I wished to do her no harm. I thought that she could go safely 14 miles a day. The night of the second day she gave less than three quarts of milk. She did not get over the strain all the year through. I believe that the bees have about so much enegy, gauged by the amount of food that they eat and digest. If they cease from exercise, then this energy goes to wax-secretion, and we get the wax-scales and material for the comb. If this is correct, then the bees simply regulate wax-secretion by regulation of habits. Much food and great quiet means wax.

Claremont, Calif.

Have Bees Reasoning Powers?

BY W. H. LAWS.

A few years ago in company with a neighbor bee-keeper, we drove to his apiary on the Nueces River. Casting our eyes about the apiary we spied a large swarm of bees hanging on a limb about 6 or 7 feet from the ground. Taking a hive, we at once prepared to hive it. On examination we found the bees had built several large sheets of comb, as I remember, the center one was nearly as large as a dinner-dish. And there was an abundance of sealed

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brood and some little honey over the present needs of the colony. This was about sunset, and, on disturbing the swarm, they very promptly showed fight and gave us to understand they regarded that spot as their home. Seeing some transferring had to be done, we postponed the job until morning. Other important work in the apiary prevented immediate attention to the swarm, and before again disturbing them in the least, the whole swarm (not leaving a bee) decamped to parts unknown, about 10 a. m., leaving their babies and a little honey also.

Why did those bees leave? Did our disturbing them on the previous evening cause suspicion? or had their pasturage become short and exposure to depredations of robber-bees and other pilferers, caused it? Perhaps they reasoned thus: "Shall we stay here on this bush and risk our life as a colony, or shall we desert our babies and all this 10 or 15 days' labor, and go to some hollow tree where we can begin anew and be in position to protect our labor and a new crop of babies?"

There must have been some mental decision, and each member of that swarm must have accorded with that decision. I've seen large bodies of men ponder for days on matters of much less importance, and never reach a decision. Shall we accord to the bees a greater reasoning faculty than man—that personage whom, it is said, God endowed with the highest and greatest of reasoning faculties?

Beeville, Tex.

Curing Apiaries of Foul Brood

BY WILLIAM MCEVOY.

In the honey season when the bees are gathering freely remove the combs in the evening and shake the bees into their own hives; give them frames with comb foundation starters on and let them build comb for 4 days. The bees will make the starters into comb during the 4 days, and store the diseased honey in them which they took with them from the old comb. Then, in the evening of the fourth day, take out the new combs and give them comb foundation to work out, thus completing the cure.

By this method of treatment all the diseased honey is removed from the bees before the full sheets of foundation are worked out. Where you find a large quantity of nice brood with only a few cells of foul brood in the most of your colonies, and have shaken the bees off for treatment, fill 2 hives full with these combs of brood, place one hive of brood on the other, and shade this tiered-up brood from the sun until the most of it is hatched. In the evening shake these bees into a single hive, give them frames with comb foundation starters on, and let them build comb for 4 days. Then, in the evening of the fourth day, take out the new comb and give them comb foundation to work out to complete the cure. After the brood is hatched out of the old combs the latter must be made into wax or burned, also all the new combs made out of the starters during the 4 days must be burned or made into wax on account of the diseased honey.

Where the diseased colonies are weak in bees, put the bees of 2, 3 or 4 together, so as to get a good-sized colony to start the cure with, as it does not pay to spend time fussing with little weak colonies. All the curing or treating of diseased colonies should be done in the evening, so as not to have any robbing or cause any of the bees from the diseased colonies to mix and go in with the bees of sound colonies. By doing all the work in the evening, it gives the bees a chance to settle down very nicely before morning, and then there is no confusion or trouble.

When the bees are not gathering honey any apiary can be cured of foul brood by removing the diseased combs in the evenings and giving the bees frames with comb foundation starters on. Then, also in the evening feed the bees plenty of sugar syrup, and they will draw out the foundation and store the diseased honey which they took with them from the old combs. In the fourth evening remove the new combs made out of the starters, and give the bees full sheets of comb-foundation, and feed plenty of sugar syrup each evening until every colony is in first-class order. Make the syrup out of granulated sugar, and put one pound of water to every 2 pounds of sugar, then bring it to a boil.

Where you find the disease in a few good colonies after all honey-gathering is over, do not tinker or fuss with these in any way until an evening in October. Then go to the diseased colonies and take out every comb and put six combs of all sealed or capped stores in their place, taken from sound colonies, and on each side of these all-capped combs place a division-board. This will put these colonies in first-class order for winter, with little or no bother at all, and the disease crowded clean out at the same time.

But some say that the disease cannot be driven out so simply in the fall by taking away the diseased combs and giving the bees 6 combs that are capped all over right down to the bottom of the frames. It can and does cure every time when properly done, and if you will stop to think you will see quite plainly that the bees must keep the diseased honey they took out of the old combs until they consume it, as they cannot find any place in all-capped combs to put it, and that will end the disease at once.

Many bee-keepers will no doubt say that this fall method of treatment will not work in their apiaries at all, because they would not have enough of the all-capped combs to spare from the sound colonies, even if they could find some all-sealed. Very true; but you can very easily secure abundance of all-capped combs by putting Miller feeders on your sound colonies in the evenings in September, and feeding these colonies all the sugar syrup you can get them to take. Then in October each of these fed colonies can spare the two outside combs, which will be nicely capped all over right down to the bottom of the frames, and with these combs you will be provided with plenty of good stores to carry out my fall method of treatment. I finished the curing of my own apiary in the fall of 1875 by this sealed-comb treatment. All of my methods of treatment are of my own working out, and none of them ever failed when properly carried out.

Empty hives that had foul brood in do not need disinfecting in any way.

In treating diseased colonies never starve the bees, because it unfits them for business and makes them thin, lean and poor, and is also hard on the queens. I never starved any bees, but always tried to see how fat I could make them while treating them, by feeding plenty of sugar syrup when the bees were not gathering honey.

If you have nice white combs that are clean and dry, *and that never had any brood in them*, do not destroy one of these, as they are perfectly safe to use on any colony of bees just as they are, and are very valuable to any bee-keeper. I have always saved this class of combs for every bee-keeper. I have always advised bee-keepers to convert into wax all old combs that ever had *one cell* of foul brood in them, and the only article that will take all the wax out of the old combs is a good wax-press. As these will pay for themselves many times over their cost, I urge the bee-keepers everywhere to buy one.—Canadian Bee Journal.

Woodburn, Ont.

The "Ups" and "Downs" of Bee-Culture

BY C. P. DADANT.

I do not believe there has ever been a better time to preach perseverance to the novices and beginners in bee-culture than at present. No business in the world is more apt to encourage or discourage to excess, those who enter it, than this occupation of ours. When the honey crop is good, the bees swarm freely, and the number of colonies in an apiary increases rapidly, the bee-keeper who has but a short experience thinks he has struck a mine of the finest gold; but when the summer is too dry, and the bees decrease in numbers, go into winter quarters with a small force, and dwindle down in the spring, he is very apt to conclude that there is nothing in the pursuit worth caring for.

In an experience of some 40 years, we have seen many of these ups and downs. Some 25 years ago we had a wonderful season for swarming. I was then handling an apiary of about 60 colonies on shares, in addition to our own 5 apiaries. These bees, located near the Mississippi River bottoms had a very nice range of fall bloom. They swarmed until the number of colonies was almost trebled, and many hives filled their supers besides. The oldest son of the family, then about 18 years old, concluded that there was nothing to equal bee-culture, and assured me that he would go into the business in good earnest the following spring. But the winter was very severe. A number of

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the late swarms were not strong enough in bees to withstand the terrible cold, and scores of colonies died with plenty of stores in the brood-chamber. This changed our young man's ideas, and he concluded that if there was a "royal road to wealth," bee-culture was not on that road. I tried to explain to him that winter losses could soon be recouped as long as there were a number of colonies remaining to breed from, and plenty of combs and honey to make increase by divisions, or what is now called "shook-swarms." But nothing would do, and at his instigation the father sold me most of the bees and kept only a few colonies.

There have been plenty of instances of such discouragements after good seasons. The success and failure of most lines of business, and of many crops, are like the waves of the seas—full of ups and downs. Now you are on the crest of the waves, and now between two billows that threaten to engulf you. But with a good rudder, and a good, determined man at the helm, there is no such thing as "fail." The methods are always being improved, and the management is becoming easier every day.

But we must not expect sunshine every day, neither should we expect a storm every night. I remember that, a few years ago, a man living in the vicinity of East St. Louis had sold something like $2,000 worth of cabbages from 5 acres. The next season everybody around him planted cabbages, with the result that they could hardly be given away, and had to be shipped to a distant market. Then all those who had so willingly rushed into this business rushed out again with the same eagerness. But the man who has experience and perseverance does not give up because of a failure. He knows that after the storm, comes the sunshine, and he makes ready for that sunshine, while the storm is raging.

In this part of Illinois, the summer of 1906 and the spring of 1907 were probably the worst known in 40 years for bee-culture. At any rate, I had never seen such unfavorable conditions for bees, up to the beginning of June, 1907. But so long as we have bees enough to build up again, there is no need to give up. On the contrary, it is then that one must persevere with renewed energy, for there are going to be plenty of weak hearts, and those who give up make the market better for those who stay in the business. See the prices of honey rising. It is because of poor crops and discouragements. But some of the bee-keepers are already reaping a reward for perseverance. Those who have held on and sustained their apiaries are in many places harvesting good crops, for which they secure a good price.

This is not the case only with bees or cabbage. Take the grape-growing business. For years grapes have sold at a loss to the producer, because they were too cheap. This year, many vineyards have been destroyed, and those who took care of their grapes are securing a good price.

So dear friends, if you have had bad seasons, do not give up; care for your bees with renewed courage and firmness. But if you have had good seasons—extraordinary crops—do not imagine that there are no more storms ahead. On the contrary, take heed, for by and by, another storm will come. Bad winters and dry summers are not over; but, on the whole, remember that there is money in bee-culture for the man who "stays with it."

In my opinion, the prices of honey are destined to remain firm for many years. There have been short crops, apiaries are less numerous, and, in addition, the new pure-food law is putting a stop to much of the adulteration, so that we have a much better chance to inspire confidence in the consumer, when we tell him that we "guarantee our honey to be absolutely pure." A few years ago he might have taken this as empty talk, but he now knows that there is a penalty for deception in foods, and this is helping us out.

Hamilton, Ill.

Are a Queen's Drones Affected by Her Mating?

BY T. W. LIVINGSTON.

Our bee-books and periodicals have long taught that a queen's drones are unaffected by her mating, so that a pure Italian queen, for instance, that has mated with a black drone will produce pure Italian drones, nevertheless. Now, I think it is time for this theory to be exploded, and I propose to explode it, and I want all bee-keepers interested to hear it "bust," because facts have never failed to show me its falsity when given the chance.

Many years ago I had some 20 colonies of black bees, and, wishing to Italianize, I purchased a $5 tested queen, and from her reared queens and supplanted all my black ones, first suppressing all the black drones I could, and allowing the Italians to rear all the drones they would, so that about 2-3 of the young queens were purely mated.

The next year I thought I would have things pretty much my own way, for at that time I did not know any better than to believe what I had read on the subject, but facts always were stubborn things, and that year about 90 percent of the queens I reared showed unmistakable impurity in their worker progeny, but less, as a rule, than the impurely mated ones of the previous year. Since then I have carefully suppressed all drones from mismated queens with satisfactory results.

Last year found me with 25 colonies—all hybrids or blacks except 3 apparently pure Italians, and one Golden recently purchased, whose bees were all 3 to 5 banded. I reared queens from these pure Italians, but mostly from the Golden, and supplanted these hybrid and black queens. This year I reared my queens from the Golden, but, as I expected, this time only 3 out of 12 failed to have some black bees among their worker progeny.

I have recently visited a neighboring bee-keeper and he showed me some colonies whose queens he said he had reared from a pure Caucasian mother, but which had mated with Golden drones, and, as I expected, their drones were (some of them) fine Golden in appearance, like some of their workers. Now, who would expect that these drones mating with pure Caucasian queens, would fail to mark their progeny with the golden coloring?

Bee-keepers, you need not take my word for it, but just try it as I have done, and let the facts speak for themselves; and when you are convinced by the facts, we may then indulge in a little philosophizing as to *why* it is so. But let the facts speak first.

Leslie, Ga.

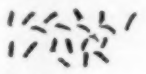
The Bacteria of the Apiary

BY ADRIAN GETAZ.

"The Bacteria of the Apiary, with Special Reference to Bee-Diseases," is the title of a bulletin by Prof. G. F. White, published by the United States Department of Agriculture.

The first point to which Prof. White calls our attention is the fact that not only the bacilli, or other kinds of bacteria which produce diseases, will be, or may be, found on or in the base, but also a number of others. Nearly always those producing putrefaction or decomposition in dead vegetable or animal substances are present in large number, not only on the bees and combs, but, in fact, everywhere. Occasionally those producing other diseases in other animals, for instance, those producing colds or consumption in the human race, may be found on the bees or on the combs, or even in the bodies of the bees where they may have been carried in, either with the food or by the respiration. As a matter of fact, however, Prof. White found much less of them than would be naturally expected.

To the uninitiated, it may seem singular that all these different germs are so different to recognize. We easily dstinguish the ordinary plants and animals because we can ascertain all the details of their organizations. But it is not so with the bacilli and other bacteria. The bacilli producing the European foul brood, when looked at through a microscope enlarging them 1,000 times look something like this:



Suppose that cats, dogs, foxes, etc., were not larger than that, how could we differentiate them? Furthermore, they are mixed with the globules of blood or fat, or particles of flesh, or other substances belonging to the animal with which they have found lodgment, and all that increased the difficulties.

The only way to separate them and study them is by "cultivation." The bacteria live at the expense of the animals or substances with which they associate. For instance, those that produce the alcoholic fermentation eat the sugar contained in the fruits. The alcohol resulting is the excreta, or matters transformed and rejected by them. The

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glue-like substance produced by the foul brood is of a similar origin. What is left after something is rotten belongs also to the same class of products. Some of these products, in fact the majority, are not unwholesome; a few are quite beneficial, but some are among the rankest poisons. The bacillus producing cholera is one. It lives in the matters contained in the intestines as well as in other parts of the body, and also in decaying substances outside. The bacillus itself is inoffensive, but its dejectives are exceedingly poisonous, and that's what kills the patient. Occasionally some of these poisonous bacilli develop in ice-creams, oysters, etc., and cause the accidents heard of now and then. A peculiarity of these cases is that the poisons thus produced kill the bacilli themselves as well as the the animal affected, or even better. The most striking examples are furnished by fevers and other diseases that run a course of a certaion duration. After the bacilli have multiplied sufficiently and produced enough poisonous matter to kill themselves, the disease has run its course, and the recovery of the patient, if he is not dead already, depends upon what strength may be left.

Cultivation of Disease-Germs.

To the one who may never have heard of it before, the idea of "cultivating" the germs of a disease must seem quite funny. But if we reflect a little and consider that these germs, bacilli, or bacteria, develop at the expense of animal or vegetable matter, living or dead, the possibility of raising a lot of them in a small vial or tube of glass is at once seen. And, furthermore, the possibility of studying them thoroughly is apparent at once. Some vials like those used for holding homeopathic remedies are usually used for the purpose.

As most of the disease-germs live at the expense of the flesh or blood of the sick animal, or in its intestines, the "medium" in which they are "cultivated," or, to use plain English, the food we furnish them, and in which they can live, is usually beef-broth or meat-juice, sometimes milk, or blood deprived of its corpuscles. Occasionally sugar syrup or gums are used—whatever the case may require. Some bacilli are not very particular, and will develop in almost anything. Others are very difficult to cultivate and cannot live except in certain substances. Quite a number have not been fully identified until the right kind of "medium" was finally discovered.

Suppose we have bees afflicted with the European foul brood, and we want to study it. A number of these small vials are prepared and filled with bee-broth, or whatever kind of medium is thought best, and then sufficiently heated to destroy any kind of germ that might have gotten in accidentally. We also make sure that the "medium" is not acid, as very few kinds of bacilli will develop where the least acidity is present. But there are exceptions. A little bit of the blood of a diseased bee is then introduced in the vial, and the stopper replaced. Then the bacilli that may be in the blood will develop in the vial and can be studied at leisure. The peculiarities of the disease—for instance, the glue-like ropiness of the foul brood—will appear in the "culture."

But that is not enough. We want to be sure that the discovered and cultivated bacillus is the one that has produced the disease. So we reverse the process. Instead of taking a little blood of the diseased bee and putting it in the glass vial, we take a little of the infected culture and feed it to a colony of healthy bees, but mixing it with sugar syrup or honey. That colony will soon show the disease with all its characteristics.

Foul Brood.

As stated at the beginning of this article, the first thing done by Prof. White and his associates was to find which kind of germs and bacteria might be found accidentally on the bees or on the combs. Quite a number are mentioned, and a few of those that might be easily mistaken for the cause of the disease are carefully described.

There are two kinds of foul brood, the European kind, which is produced by the *bacillus alvei*, and the American kind, which is produced by the *bacillus larvae*. I will not describe the diseases, as they have so often been described lately that the readers of this paper undoubtedly know what they are. The chief difference between the two is that the dead brood from the American foul brood shows considerably more ropiness and glue-like consistency than the other. The two kinds of bacilli are so near alike that they cannot be distinguished with the microscope alone. A "cultivation" is necessary to ascertain "which is which" when found. There is, however, a considerable difference in the "cultivating" results. The *bacillus alvei* will propagate easily in almost any kind of "medium." Beef-broth is the best. The *bacillus larvae*, on the other hand, is extremely difficult, almost impossible, to cultivate. In fact, Prof. White is the first bacteriologist that has succeeded.

The *bacillus alvei* was thoroughly studied by Cheshire and Cheyne between 1880 and 1885. They had the bees and all the necessary facilities, and ability to do the work. All the investigations made since have confirmed their descriptions and assertions. Cheshire was aware that there was another kind of disease similar to that produced by the *bacillus alvei*, but he did not publish any description of it.

From that time until recently it was generally admitted that there was but one kind of foul brood, and that it is produced by the *bacillus alvei*. Nevertheless, now and then came some dissenting voices. The descriptions given did not tally. In fact, they could not since there were two diseases. The "cultures" made sometimes yielded the *bacillus alvei*, sometimes not. In that last case, the operator usually succeeded in cultivating some bacillus or other that just happened to be there, but had nothing to do with the disease. Those who confined their observations to the microscope mistook the *bacillus larvae* for the *bacillus alvei*, as they are too near alike to be distinguished by the micróscope alone. As both diseases are common, both here and in Europe, it is very likely that in many of the cases observed both diseases existed together.

Finally, a few years ago, Dr. Burri, of Switzerland, discovered beyond a doubt that there were two diseases, produced by two different bacilli. He had no difficulty in cultivating the *bacillus alvei*, but completely failed to cultivate the other. On this side of the Atlantic the existence of two diseases became evident a few years ago, and one of them received at first the name "black brood."

To Prof. White belongs the honor of having cultivated and studied the *bacillus larvae* in a scientific way. After trying the usual medium without success, the idea occurred to him that since the *bacillus larvae* was living in the bodies of the bees, or rather their larvæ, it would probably live and develop in a broth made of bee-larvæ. Success crowned his efforts, and he thus was able to cultivate and investigate the *bacillus larvae*.

Bee-Dysentery.

Incidentally, dysentery came also under consideration, while Prof. White and his associates were studying the *bacilli* and other similar organisms that are found in the intestines of healthy bees.

An immense number of different kinds of such organisms are found in the lower intestines of all the animals, man included. As the matters contained in the intestines are very near the same in all, the same organisms are found indistinctly in all, or nearly so.

In studying those contained in the intestines of the healthy bees, many of those that infest the higher animals were recognized. This could be expected since the intestinal matters contained in them are very similar. As long as the movements of the intestines are regular, these organisms are carried out nearly as fast as they multiply, and do not cause any trouble. But if through some cause or other the movement ceases, then they may accumulate to such an extent as to cause serious disease. Hence the dysentery of the bees, when they are confined and do not void the contents of their intestines.

Spores in Honey.

Like Cheshire, Prof. White found that the honey from the hives infected very seldom contains any foul-brood *bacilli* or their spores. However, considering how small they are, they may often have escaped observation. Furthermore, a single one might be enough eventually to infest a whole apiary.

There is quite a misunderstanding on this matter among our bee-keepers. Even our best writers are not exempt. To understand the case fully, we must consider how the *bacilli* propagate themseves. The *bacilli* of both foul-brood diseases are very small, rod-like things. They grow in length rapidly, and when they have attained a certain size they break in two pieces, and there are then two different individuals where before there was but one. These grow and divide like their predecessors, and as the process is very rapid, a division occur-

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ring every few minutes, the increase in numbers, under favorable circumstances, is quite astonishing. This process continues as long as there is something to eat, but when there is nothing left they change completely. They become almost round instead of rod-shaped, and then stop growing. They become what is called "spores." These spores are to the adult bacilli what the seeds are to the ordinary plants. They are far more resistant to extremes of temperature or chemical agents than the bacilli. The majority of them, however, dry out and die in the sunlight and the open air. Some, however, resist quite a long time. But we know how beneficial the open air and the sunlight are in all the human diseases, and how dampness and obscurity favor the development of all disease germs, molds, putrefactive bacteria, etc.

The experiments made a few years ago by Dr. Howard show that the spores of the foul-brood bacilli do not resist the sunlight and open air more than a day or two. That explains why the hives contaminated do not need disinfecting, the spores that they contain are soon destroyed by being exposed to the open air.

On the other hand, these spores will keep indefinitely in honey, but without developing. The honey protects them against the open, dry air, but on the other hand, its acidity, while not sufficient to destroy them, nevertheless prevents them from developing.

And that is where he danger exists. The spores do not propagate themselves as such. When they are placed where they can develop they turn back into rod-like bacilli which immediately grow and divide as before described.

If the bacilli could propagate in honey they would soon destroy it as effectively as they destroy the brood in the diseased colonies, or the cultures in which they are placed. But they don't. Their spores remain there without any change, and then, as soon as they are brought in contact with the brood, they begin to develop at once.

Knoxville, Tenn.

Food Value of Honey as Compared With Other Food Stuffs

BY PROF. G. L. TANZER, PH.G.

No question affecting the human race is of so much importance as that of food stuffs. Evolutionists are well aware of the fact that the two great forces—the two great agencies—by which animal species were evolved, the one from the other, and the human race from them all, are food and climate. With the latter we have nothing to do at this time, and with the former we are only to consider briefly one of the many food compounds which is offered for the appropriation of men and women, to-wit, that of honey.

It is evident to my understanding that the whole question of food stuffs is to engage the attention of scientific men in the near future, not only from the old standpoints of pure physics, but from the newer view-point of the psychological welfare of our race.

Up to the present time whatever research scientific men have made regarding the value or adaptability of foods has resulted exclusively in determining their utility in assimilation by the bodily organs of digestion and assimilation as to purely physical results.

It is fair to say that we are progressing as a race, and rising to higher summits of knowledge and experience. The time is rapidly approaching when the value of food stuffs to be appropriated by human beings will be determined not only with reference to their purely physical results, but also with reference to that assimilation of foods, which reaches out to the building up of the higher faculties.

Science is already disclosing to our vision that there is a wonderful interdependence of the life foods appropriated by a life organization. We know there is not a square inch, so to speak, of any surface of the exterior of the human body that does not contain scores of hungry mouths that are constantly devouring foods, and these foods comprehend all substance from magnetism to heat, harmony and light, or colors. Hence we see that the assimilation of food in a life organization, such as a human being, reaches to all of the qualities of substances of our universe.

Holding our subject in thought from this standpoint, we see at once that science has a mighty work on hand in determining what so-called bodily foods, or foods appropriated through the stomach, will best assimilate through the bodily organs, in conjunction with the other foods I have named, so as not only to produce the best physical results in and for the physical bodily organs, but the best contributions to the upbuilding of the psychological organization of the man or woman.

It is within our knowledge that many of the so-called bodily foods work out in their assimilation injury to the mental and psychological welfare. I am of the opinion that nearly one-half of the volume of so-called bodily foods and drinks now appropriated bring about these regretful results, and that they should be discontinued by people generally as rapidly as possible. I will further state that it is my opinion that the next quarter of a century will witness the abandonment of a great many of the foods now appropriated and will demonstrate that the people generally, especially those who enjoy the higher planes of civilization, are devouring or appropriating, so far as volume, bulk, and variety are concerned, more than double that which they should appropriate.

Men and women are eating too much, speaking from the standpoint of quantity, and are overloading the physical machinery and thereby chaining their lives to the physical, whereas by a better selection of food stuffs, they will more rapidly rise in the scale of our destined life qualities.

There are three classes of food stuffs to which I desire to direct your attention. These are honey, eggs and milk.

It is remarkable that these foods are compounded for the consumption of the human race by the three great divisions of the animal kingdom, to-wit, by the insect, the bird and the mammal tribe. The bee provides the honey, the bird produces the egg, and the mammal yields to us the milk.

It is scarcely necessary to point out to you the fact that with the exception of certain vegetables, these three food stuffs rank higher than any others known to scientific research. We find from statistics that the relative value of these three foods, that is to say, the relative fuel value of them per pound in calories, is as follows:

1. Honey ..... 1520 calories
2. Hens' eggs uncooked, average ..... 720 calories
   Hens' eggs boiled, average ..... 765 calories
3. Milk average of market product ..... 325 calories

I should observe in this connection that the yolk of the egg when boiled has an average of 1705 calories and has an exceedingly high fuel value. It will be seen, however, that honey stands preeminently at the head of this list as a fuel or energy-giving value. But let me say in addition to this, honey stands transcendently higher than the other two as a life-giving food from the standpoint of its power of assimilation in supporting and developing the higher faculties of a human life organization. This partly arises from the fact that, while milk and eggs contain a considerable percentage of animal substance, honey is composed almost entirely of vegetable substance of a high quality, including only such exceedingly small traces of mineral substance, and that of such a quality as to contribute to its tonic value. We do not appropriate as food the flesh of the insect, from the laboratory of whose body the honey is compounded, but we do appropriate as food the flesh of the fowl, in the laboratory of whose body the egg is compounded. We also appropriate as food the flesh of the mammal, in the laboratory of whose body the milk is compounded. Better by far for the human race, if men and women generally would eschew completely the two latter classes of food stuffs.

Pure honey is a syrupy liquid of a light yellowish, to pale yellowish-brown color. It is translucent when fresh, but gradually becomes opaque and crystalline, having a characteristic aromatic odor and a sweet, faintly acrid taste.

Analyses of honey vary somewhat in their composition, due to climatic conditions and the sources of supply.

The average composition is as follows:

Dextrose	34.4
Levulose	39.2
Dextrine	4.0
Mineral substance	0.2
Formic acid	0.2
Water	22.0
	100.0

Let me call your attention to some observations concerning honey contained in the United States Dispensatory, a large volume well known to all chem-

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ists and druggists. This work, which is a standard book of science, behind which are such names as Dr. George B. Wood and Dr. Franklin Bache, is now in its eighteenth edition, and I regret to say that it is not up to date, not abreast with scientific research in regard to honey. On one of its pages it states that naturalists have not yet determined whether it is a secretion of the bee (apis melifica,) or exists already formed in plants. This work further says that honey probably undergoes a change in the organs of the bee, as the saccharine matter of the nectaries, so far as it is possible to examine them, lacks some of the characteristic properties of honey.

Now, let me explain to you just how honey is manufactured, or compounded, if you prefer that word. Let us see just what part the bee performs in its work and what part the flower performs. Modern science has determined that honey is the result of fermentation, and that it is not secreted as honey by the flowers. The first bee that visits a flower and enters its petal does not obtain any honey. The bee simply makes a scratch at the base of the petal so as to set at liberty the sap of the flower. After the bee has lanced the flower, it begins to "bleed," or to emit the sap. This emitted sap contains traces of starch. This sap thus exudated undergoes fermentation. When this takes place the compound honey is the result. Now, the fermenting element was contributed by the bee when it first visited the flower, but when it did not obtain any honey. After a little time the first bee, that contributed the fermenting element, was succeeded by another, which obtained the honey. Thus it will be seen that the honey does not all come from the flower, although nearly the whole volume of its substance does proceed from the flower, but that a leaven, which leaveneth the whole lump, is contributed from the life organization of the bee itself. Thus the force or principal in the honey is the product of the bee, and this sub-store of honey, like the yeast in the bread, and like spirit in life, is the active, life-giving element of the compound, which renders it unlike any other compound in the universe, and as such the most potent and the highest contributor to a human life organization.

It is indeed gratifying to observe the inauguration of a campaign to educate the public of the great merits of honey, as a food product, and it is to be hoped that the praiseworthy efforts of the agricultural press with the exhibit of the bee-keepers' associations of the Western and Northwestern States, at the Portland exhibition, will result in bringing this product into greater prominence and daily use in every household.

A good deal has been said about honey pro and con, and it cannot be denied that, to a great extent, the public mind has been influenced—unjustly influenced—against the use of this wholesome and nourishing food product, by constant cries of adulteration, and again by the publication of articles of alleged cases of poisoning by honey.

Let me call your attention to a well known handbook for pharmacists and physicians, written by Prof. Joseph Remington, one of the prominent pharmacists of the country and a professor of a pharmaceutical college. We find under the head of "Mel" (honey) the following:

"Large quantities of honey are obtained from California, the southern States and the West Indies. A still larger amount, however, is manufactured by flavoring and coloring artificial glucose." Further on he states: "Owing to the difficulty of obtaining pure honey in large cities and towns, its place in many medicinal preparations has been filled by substituting syrups or glycerine."

Can there be anything more astonishg than such a statement? Think of it for a moment. Honey substituted by syrup or glycerine in drug stores, where the term substitution should not be known, and should certainly never be practiced.

If some unscrupulous persons have in the past made, or even continue to make, or practice adulteration of honey, it would be far more satisfactory and just to all parties to locate and prosecute the offenders instead of disocuraging the use of this splendid food product, by the circulation of such literature.

Regarding some cases of poisoning by honey, which occurred in New Jersey and other States, it can be said that no case of poisoning by honey would be on record if some care were exercised in not placing an apiary in a locality where many of the Ericaceae abound, even though it appears to be an ideal spot otherwise, as it is well known that honey produced by bees having access to certain Ericaceae, acts as a narcotica-irritant.

However, such a poisonous product can generally be distinguished readily, because it never thickens; the color is redder than usual, and the honey emits a peculiar smell which immediately produces sneezing.

There is absolutely no reason why the public should hesitate to cast aside their suspicion with regard to honey, because no honey can be adulterated in such a way as to correspond to the genuine article in every detail. The chemical analysis may fail to detect the adulteration, but the spectroscope cannot be cheated.

We will now direct our attention to the fuel value of honey as compared with meat and some agricultural and horticultural products.

By fuel value is meant the number of calories of heat equivalent to the energy which it is assumed the body would be able to obtain from one pound of a given food material, provided the nutrients of the latter were completely digested:

FUEL VALUE.

	Calories
Honey, average	1520
Green Butter Beans, average	370
Green Lima Beans, average	255
Dried Lima Beans, average	1625
String Beans, (cooked) average	95
Beets (fresh) average	215
Cabbage, average	145
Cauliflower, average	140
Corn (green) average	470
Cucumbers, average	80
Kohl-rabi, average	145
Mushrooms, average	210
Peas (green) average	465
Peas (dried) average	1655
Potatoes (raw) average	385
Potatoes (boiled) average	440
Sweet Potatoes (cooked) average	925
Pumpkins, average	120
Saurkraut, average	125
Spinach, average	260
Butter (market product)	3605
Sugar (market product)	1860
Sugar (maple)	1330

The fuel value of fresh fruits is almost the same as of vegetables and I will state but a few of them for the sake of comparison:

	Calories
Apples, average	290
Apricots, average	270
Bananas, average	460
Cherries, average	365
Figs, average	380
Grapes, average	450
Oranges, average	240
Pears, average	295
Plums, average	395
Watermelons, average	140

ANIMAL FOOD.

Roast Beef, average	1620
Round Steak, average	840
Sirloin Steak, average	875
Corned Beef, average	1271

Now, it can readily be seen that the fuel value of honey exceeds some animal foods and a great many vegetables and fruits, and has the advantage of being more readily digested and assimilated than the majority of the articles mentioned.

Speaking from a medical point of view, it is a well known fact that honey has been used with great advantage for the cure of coughs and colds. It has been a favored remedy of the old-time practitioners, who no doubt would have strenuously objected to a substitution by syrups or any other substance.

In justice to the up-to-date druggist, it may be stated, that but few adopt such practices, as set forth in the handbook named, and only on very rare occasions are such substitutions practised. It is safe to say that at least in this State, there will not be found a single druggist who does not keep a quantity of strictly pure honey in stock for dispensing purposes.

In this connection permit me again to say, that the science of physics does not exercise a complete mastery over the substance of food stuffs. Science in this respect can reach, to determine their qualities, only the coarser physical elements. We must ascertain the nature of the elements contained in any food compound, not only from the standpoint of natural history science, but from the viewpoint of natural philosophy. The higher elements in a food compound may be the most potent life giving and life-extending factors in that compound. Thus it is that honey, as we have already seen, in all of the elements of its finer and higher substances can not be brought to vision, even by the science of optics. We must arrive at the fact of their existence in another way.

However, enough has been said to demonstrate clearly that honey ranks

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high as a food, and used in the proper connections with other food stuffs, it may be regarded as, in actuality it is, one of the most complete solvents for assimilation that can be appropriated in the human stomach.—Read at the Washington State Convention.

We submitted the foregoing article to Dr. E. N. Eaton, ex-analyst of the Illinois State Food Commission, who reported as follows:

"The conclusion to the article is undoubtedly correct.

"I am inclined to doubt scientific basis for statement that certain foods build up the higher faculties, or that it is advisable to eschew eggs and milk because the flesh of the animals which furnish them is used for food.

"As to the composition of honey, I believe it to be a fact that dextrose and levulose are present in nearly equal proportion; that dextrin is hardly ever present to the extent of 4 percent, and that cane-sugar or sucrose is normally in from 2 to 7 percent.

"While the statement has frequently been made that honey contains formic acid, I do not regard it as positively proven.

"The amount of calories or heat-producing power of a food is not a criterion of its food-value, but only of its energy value, presuming that it is digestible. Honey, however, has a high value in this line." "E. N. EATON."

Conducted by EMMA M. WILSON, Marengo, Ill.

Beginning With Bees

DEAR MISS WILSON:—I write to ask your opinion on getting some bees. I have wanted a few colonies for years, but not knowing how to manipulate them, and having no one near to help me, I have never started. I am not able to take a course in bee-culture, but do you suppose with the aid of a good book on bees I could learn the work? This is a very good locality for them.

(Miss) SARAH HARRIS.

Concord, N. C.

Whatever advantages there may be in a course of instruction, the probability is that the great majority of bee-keepers began with no other advantages than you have. Get a good text-book and put in your extra time this winter studying up on bees. Also take one or more of the bee-papers. If you are thinking of making a business of bee-keeping you cannot afford to get along without them.

In the spring get 2 or 3 colonies of bees, and you can begin to put into use the knowledge you have stored up. You will make mistakes, but that's the way to learn.

Starved Bees—A Sister's Report and Experience

DEAR MISS WILSON:—I mean to have a good, solid "bee-talk" with you today, and so beg your patience and kindly interest.

Our bees at Clovernook have had a simply awful year of it. I need not recall to you what last winter was as to sustained and vigorous cold, and you doubtless know what kind of a spring and summer this northern end of Lake Champlain has caught.

Our apiary usually numbers between 80 and 90 colonies, but during the last 3 years has dwindled somewhat, so that last fall we put into the cellar only 56 colonies. These, however, were in good, healthy condition, and had plenty of honey for all reasonable demands.

Last spring I lost all but 23 colonies. There was no honey left in any of the hives, and most of the bees must have starved to death in the cellar. We have caught only one swarm this summer, and our bees were not ready for supers until August 15, when we put on 11. There is but very little honey in them now.

All this summer I have watched for a favorable condition of affairs to do some artificial increase work in the yard, for I am not content to let our apiary rest in such a reduced condition; but if a suitable time did come, my man was away, I was sick, or we had a hurried shipment of ducks to get off, so the summer had drifted by until last Monday, when I became desperate. With my man's help we placed 8 clean hives on some of the empty stands, each with 6 good worker-combs, and put into the center of every hive 3 to 4 frames of capped brood with the bees clinging to them, from the 12 colonies I had reserved for this work. Where they were good and strong in brood we took 3 frames, in others but 2, and in a single case but one. Several of the nuclei have but 3 frames of brood. The rest have 4 frames.

We did this work in the afternoon, and of course had wire screens over the entrances to keep the bees in till accustomed to their new homes. We also, after placing on the mat and cover, put on extra covers to keep the heat off the new colonies, and opened up or took off the wire-screens the following evening—Tuesday.

I think our nucleus colonies are all right so far; but of course the disadvantage of this method of increase is that we can not tell for sure where the queen is, and it is too late, really, for the bees to secure queens for themselves, as I think the probabilities are that we will get frost within the next 2 weeks.

My plan has been to use the surplus honey from our 11 supers to help out these young colonies, and to buy a few queens to supply deficiencies. I shall watch closely, and where I find freshly-laid eggs, of course, I will know the queen is present, and will mark that hive "O. K." Where no eggs appear we will reserve for the queens bought. If they start queen-cells for themselves, so we will have some extra queens, we may possibly be able to make one or 2 more new colonies.

The lowest I ever had my bees was the first fall, when we put into the cellar 30 colonies. I mean to work these up to 80 colonies as fast as possible. It seems very queer not to have a pound of extra honey, when in times past we have had as high as 5 tons from 64 colonies.

I think the cause of our heavy mortality in the winter was the jars and slamming that went on overhead. I could not seem to make my chore-man understand the importance of keeping the bees quiet.

Best wishes and kindly greeting to our "sisters"—and the "brothers," too, if they care for it. F. E. WHEELER.

Chazy, N. Y., August 22.

Thanks for so full and candid a report. It takes many and many a year's experience to stear clear of starving colonies in winter. Some colonies seem to take a spiteful pleasure in starving when they are as heavy with stores as other colonies that winter all right. As one cannot know which these exceptional colonies are, that require an extra amount of stores, the only safe way is to treat all as exceptional cases, and see that they have not only enough, but a good bit more than enough to take them safely through until they can gather again.

Early in the season preparation should be made for having extra combs of sealed honey ready for any emergency. Then at the close of the season put these heavy combs into the hives wherever they are needed.

We always weigh each colony unless we know that they are so very heavy that they are away beyond the danger-point. Whatever combs are not needed in the fall will come in very nicely in the spring to replace empty combs. We would have been in bad shape last spring had we not had 250 heavy combs of sealed honey to give our bees, although they went into the cellar very heavy, indeed, with stores. But we don't often have such a very, very bad spring as we did this year. The weather was so bad that the bees would not have left the cluster to take feed and I feel sure we would have lost heavily but for those heavy combs of honey.

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Those who are so unfortunate as not to have such combs must resort to sugar syrup or candy.

A nucleus with 4 frames of brood the third week in August ought to have no trouble in building up for winter, and in this locality they would be pretty safe as to rearing queens, but it would have been much better if there had been a sealed cell to give to each nucleus. Of course there is always some risk as to young queens being lost, and in your peculiar climate there may be unusual loss, but let us hope for the best.

It is not certain that your heavy mortality in the winter was due to the jars and slamming. Bees will stand a lot of noise and jarring overhead, especially if it be somewhat regular.

Harvesting Sweet Clover Seed

Those readers who favored me with orders for seed of yellow sweet clover may be interested in seeing how we gather it at our house. All the help we can get from the men-folks is the

Pounding Out Sweet Clover Seed

mowing. I get one of them into the field when I think it is ready, preferably while the clover is damp or wet, so that the seed will not shell so much as it does when dry. It is then allowed to lie on the ground for a few days to finish ripening, when the girls and I go out with the buggy canvas to get the seed. We go in the morning, while the clover is damp with dew, and load up a good pile which we leave till towards evening. It is now thoroughly dry, and yields very readily to the feet and sticks of the harvesters.

Day after day we do this *until the crop is in.* I like to get the seed off the ground even if no one wants it, for if left on it seeds itself too heavily. Treated as we do, a field gives good results year after year.

(Mrs.) A. L. Amos.

Comstock, Neb.

Swarm Settling on a Sister's Face

While Miss Richards, of Mabe, Cornwall, was watching her bees, a swarm suddenly settled on her face and neck. Fortunately, she had courage enough to allow them to remain undisturbed, and eventually the bees were successfully drawn off and hived, without having caused the slightest injury to Miss Richards. I thought an incident so unusual and so illustrative of the lady's courage would be worth recording.—British Bee Journal.

A Sister's Experience in South Africa

At Marian Hill, one of the sisters from the cloister was trying to capture a wild swarm which a Kaffir woman had told her about. She thus tells the story according to Unterfr. Biene:

"* * * * * *. Alas, with lightning speed and great noise and confusion came the whole swarm flying upon me. I had the feeling as if great hail-stones had fallen from the sky upon my face. I shook my head, but it was no help, the swarm hung fast. Apparently they had first settled on my frontlet, for the swarm was very heavy, and lay thick upon my face, and hung down like a beard over my breast. There I stood, blind, deaf and dumb. Head and neck behind the veil were covered solid, so that I could no longer move my head. Directly I felt a difficulty of breathing, and tried to open my mouth to get a little air, but immediately the bees tried to get into my mouth, so I was obliged quickly to close my lips again. At first I could get some air through the nose, but the bees crept also into the nose-holes. So I was obliged to look forward to a fearful death-struggle.

"The sister with me didn't know how to help. I took a memorandum book from my pocket and wrote on it that she should run to the mill, some 10 minutes away. Trappists were there at work, and she should bring a queen from Brother Caspar who kept bees. After a long time I finally succeeded in getting the bees onto the scapulary; from there I shook the swarm into the swarm-catcher, and ran away, glad to escape from death. If I had undertaken a struggle with the bees, and resisted the attack, they would certainly have killed me."

The sister relates that only a few bees stung her; but they scratched her face with their claws, and with their little tongues and jaws had picked and bitten her, and especially burrowed continually into her eyes.

Wintering Queens the Third Winter.

E. W. Alexander having advised not to try wintering a queen the third winter, Dr. Miller raises the question whether there is not a difference caused by locality, strain of bees, or something. He has had in his hives the past season 24 queens that had passed their third winter, and says:

"I don't see but they average fairly with others, some of them the best. I don't believe longevity in bees is appreciated as it should be. If six weeks is the average life of a worker in summer (lately the tendency is to discount that a little), and if it takes to the field at 16 days of age, then a worker that lives 48 days instead of 42 ought to gather 23 percent more than the average. Even if it lives only a day more than the average, it ought to gather 104 pounds for every 100 pounds gathered by the average bee. If a strain of bees has queens that last three years and do good work, and another strain has queens that are good for only 2 years, would you not naturally expect that there would be a difference in the ages of the workers from the 2 queens? And how will you encourage long life in the workers any better than by favoring long life in the queens? The thing is worth thinking over."—Gleanings, 1128.

Vitality of Queen's Eggs.

J. L. Byer says, in Canadian Bee Journal, that one of the best known and most successful apiarists "claimed that if a comb was inserted in the brood-nest in the fall, when the queen was yet laying, and then taken out again as soon as eggs had been deposited, these eggs would develop the following spring if the comb was put in a hive again. The comb could be stored any old place, at a zero temperature would not hurt the eggs in the least."

Longevity of Bees.

Mr. Beuhne says we can't have short-lived queens and long-lived workers. Roughly speaking, he requeens every 2 years, but his extra-good queens are allowed to live as long as they will, and by breeding from such queens he secures longer-lived workers. H. L. Jones says he has a very yellow queen 6 years old that is doing good work still.—Australasian Bee-Keeper, 232.

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Conducted by J. L. BYER, Mount Joy, Ont.

Fall Honey Crop a Failure

Throughout many sections of Ontario there has been a total failure of the fall crop of honey. Consequently feeding now is (or should be) in full progress. In our own apiaries we find it necessary to feed just about as much as was taken away earlier. Pretty discouraging; but wait till next year!

Short Crop and Honey Exhibits

Although the honey crop in Ontario this year is very short, if any one had no knowledge of this condition and should take a stroll through the honey exhibit at the Canadian National Exhibition, he would not be apt to think that such was the case. Our American cousins quite often give our Canadian bee-keepers the credit of being able to produce good honey, and also of knowing how to put up a good exhibit. Results at the Pan-American would seem to bear out such assertions, but aside from any opinions of past exhibits, the display, both as to quality and staging at the present Toronto Fair, is certainly of high merit. That the honey went in "streaks" this year is shown by the absence of some exhibitors who usually are in evidence. Messrs. Arthur Laing, George Laing, E. Grainger and D. Anguish, are the only bee-keepers showing any quantity of honey, and these four gentlemen certainly are to be congratulated for the trouble they have taken to arrange such large and attractive exhibits.

Mr. Arthur Laing has an original and unique display in the shape of a complete apiary in wax. The honey house is *sheeted* with comb-foundation, and the miniature hives and stands, which are perfect models of standard goods, rest upon a moss-covered lawn. As an educational feature such an exhibit cannot fail to be of great value.

Mr. E. Grainger has observatory hives in which Italian, Carniolans and Caucasion bees are shown. As is usually the case, the center of interest for visitors is the queen, and quite amusing it is to stand near a live bee-exhibit and listen to the different comments and suggestions of people, as they are looking for her Majesty.

Mr. Grainger tested the Caucasian bees this year, and says they did not do nearly as well as the Italians. I am inclined to think that the boom for Caucasians will be short-lived; in fact, we are not hearing nearly so much about them as a year ago at this time.

McEvoy Treatment of Foul Brood

On page 63, in Bulletin No. 70, issued by the U. S. Department of Agriculture, there appears to be some misunderstanding as to what the McEvoy treatment for foul brood really is. A number who claim to use the McEvoy system, omit one of the most important details—the second shaking. While once shaking will often cure mild cases, the second shaking is necessary to secure uniformly successful results. For this reason Mr. McEvoy has always insisted on shaking the bees on full sheets of foundation, after having for 4 days been on foundation starters.

In the Bulletin referred to, Dr. Phillips is credited with saying, "He [Mr. McEvoy] recommends the second shaking after the bees begin to drop from starvation." While no one will think for a moment that Dr. Phillips would knowingly misrepresent Mr. McEvoy, yet to show that just the opposite to starving is Mr. McEvoy's advice, I quote the following from the pamphlet entitled, "How to examine apiaries and cure them of foul brood," issued by the Ontario Department of Agriculture:

"In treating diseased colonies never starve the bees, because it unfits them for business, and makes them thin, lean and poor, and is also hard on the queens. I never starved any bees, but always tried to see how fat I could make them while treating them, by feeding plenty of sugar syrup when the bees were not getting honey."

Bees and Horticulture

From a report relative to the peach crop, lately issued by the fruit-growers of the Niagara peninsula, I clip the following:

"The earlier reports sent out of an average crop were too optimistic, based on the number of fruit-buds. However, owing to the late cold spring, and the absence of bees at the right time to fertilize the blossoms, the fruit did not 'set,' and consequently men who were counting on thousands of baskets will now be glad to obtain that many hundred."

It is gratifying to note that all progressive fruit-growers now recognize the honey-bee as a necessary adjunct to successful horticulture. Not so many years ago, such was not the case, and as a consequence complaints of fruit-trees being sprayed while in bloom were quite prevalent. Now all this is changed, and it is only on rare occasions that we hear of the law against spraying being violated. When a man is once convinced that the doing of a certain thing is detrimental to his own interests, such knowledge is of more effect than any law compelling him to refrain from doing this same thing because of the injury resulting to others. At the same time, the law against spraying trees while in bloom, has answered, and is answering, its purpose, and possibly has been the means of helping to bring about present satisfactory conditions. It is surprising that at least one of manufacturers of sprayers continues to send out with his machines, circulars in which it is advised to spray while trees are in bloom. It is needless to say that said manufacturer does not live in Canada, but the wonder is (no matter where he lives) that he manages to sell his machines to enlightened fruit-growers. Certainly the bee-keepers should "sit" upon such a man, and "sit hard," too.

Stingless Bees All Dead

One of the most fascinating experiments ever attempted in apiculture, according to Discovery, was begun last summer at the American Museum of Natural History, New York City, and has ended, as was expected, in failure through the death of the insects.

The subjects of the experiment were a colony of brown stingless bees—probably the first ever seen in New York.

They were brought from the interior of Venezuela. In the insect gallery visitors could see them busily at work in a glass-covered box, in which they had built the queerest nest imaginable. Rising to a peak, it resembled nothing so much as an irregular, jagged mountain, of a very dark chocolate color.

The box was placed at a sunny window, in the lower frame of which small apertures connecting with the box afforded egress and ingress to and from the outside world. The little foreigners when installed immediately set about making themselves familiar with the city and its parks and the surrounding country.

Hard by, at another window, was a colony of American honey-bees, stingers these. The visitors were brought to the United States with the idea that they might be crossed with the honey-bees and a new stingless species thus produced combining this advantage with the superior qualities of the native insect.

The species were so remotely related and the habits of the stingless variety so highly specialized, however, that the scientist at the museum considered hybridization to be an impossibility.

The honey of the stingless bee, although much appreciated in Cuba and South America, where if is supposed to possess valuable medicinal properties and is an article of food, is very inferior both in quality and quantity to that of the honey-bee. As pollen gatherers, however, they are vastly superior to the latter, being able to carry much heavier loads and to work longer and

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in weather when the honey-bee would not venture out. In this capacity they would have been important allies of the agriculturist in the cross-pollination of flowers and in increasing the fruit supply.

Through the long warm days of summer and while the woods took on their autumn tints the stingless bees, which when they arrived numbered about 300, thrived and multiplied amazingly, but the chill, drying winds of the late fall brought disaster to the busy inhabitants of the hive.

They did not seem to mind the cold so much. Indeed, their resistance to it was a matter of astonishment to the experts. What they could not bear up under was the dryness which comes with the approach of winter. The hive box was taken from the window into the warmth of the steam-heated museum and honey in abundance was given to the workers, which at once began storing it in their pots. But indoors the air, if comforable from the point of view of temperature, possessed, like that outside, the fatal quality of being too dry, and though fighting bravely against this unaccustomed and impossible condition, the bees one by one died off, until now none remains.

Of late we have not heard much about the stingless bees, through the columns of the apicultural press, and it seems we have to "go away from home to get news." Just how much of the foregoing is truth, and how much is reporter's twaddle, would be interesting to know. Who can give us the necessary information?

Bee-Management for Beginners

The month of May, 1907, has been perhaps the most backward for the bees, as well as for everything else, on record. It contained fewer good days—days in which the bees could fly and gather honey and pollen—than usually occur in the month of April. Only bees that had abundance of honey in their hives early in the spring have been able to pull through, unless feeding was resorted to to keep them supplied and to keep the queens laying. Snow has fallen several times during the month, there being half an inch or so on the morning of the 28th. Even at the best of times the cool nights prevented the secretion of nectar in the dandelions and other early flowers that persisted in blooming in spite of the weather.

The beginner who succeeded in having his bees come through the past winter and spring in good condition may rest assured that the conditions existing in the hive last fall have stood the most severe test successfully, and if he knows just what those conditions were, and can have them the same every year, he should never be troubled with winter and spring losses to any extent. But the same conditions do not always produce the same results, and "beginners' luck" often makes the novice's hat too small for him. It is almost safe to say, however, that none of the younger class of bee-keepers has come through the past month with the idea still clinging to him that bee-keeping is all "beer and skittles," and the earlier in his experience the beginner learns this fact the better it is for him

But that is in the past—or should be by this time, if we are to have any honey season at all this summer, and what is no doubt worrying the beginner now is, when to put his supers on and a few other things like that. The average beginner seems to have an idea that, as soon as a hive appears to be full of bees, they are ready for a super, or top story. This, however, is not always correct. Let us see:

The super is for receiving the surplus honey, that is, the honey gathered by the bees over and above what they require to feed themselves, and the brood in the hive, and to produce wax (for the production of wax by the bees necessitates the consumption of a large amount of honey). Now, the mere fact that the bees appear to be carrying in a lot of honey is no sign that they need additional room to store. Perhaps they are not carrying nearly so much as would appear to an inexperienced person to be the case, and until clover is well in bloom, it is seldom, very seldom, that the bees gather honey faster than they use it, for they use it wonderfully fast at this time of the year. There are cases where a hive becomes so crowded with bees before the rush of the white honey harvest commences that it is necessary, or advisable, to add an upper story to prevent too much crowding, which induces swarming. In these cases, if the bee-keeper has any dark-colored combs, a hive-body filled with these is placed over the colony and the queen allowed to occupy them with brood until the time arrives for putting on the white combs or the section supers to receive the main honey-flow, which, as mentioned above, comes chiefly from clover and basswood over most of Ontario.

When the rush of honey begins, this upper story of combs is removed, and any containing brood may be given to colonies which lack one or two combs of having their hives fully occupied with brood of their own. The bees must, of course, be shaken or brushed (brushing is better for combs containing brood) into or in front of the hive from which the combs are taken. If, before lifting the upper story off, a few good whiffs of smoke are sent down between the combs, the queen, along with many of the bees, will be very likely to run below and so be out of danger of injury in handling the frames. Allow about a minute for the bees to run down after the smoking before lifting off the upper combs.

How are you to know when honey is coming in faster than the bees are using it? When clover is nicely blooming and you see the bees coming in with heavy loads—so heavy that they often have trouble in navigating, and fall short of the entrance of the hive when returning to it—take a peep in the top of the hive. If you see, between the top-bars of the frames, that the bees are whitening the edges of he combs with new wax, and depositing little flakes of white wax on the sides of the top-bars, as if they were looking for a place to build more comb, it is a sign the supply of honey is greater than the demand, and the time has arrived for the storing of surplus honey if there is to be any worth storing.

When you see these conditions, remove the cover and the cloth under it, if there is one, and there should be. If running for extracted honey, put on a queen-excluder, and on that place the super of combs or full sheets of foundation. Put on the cloth and cover, and there you are. When running for comb honey, a queen-excluder is not generally used, as a queen will not lay eggs in the small combs in the sections, except in very rare instances. When the white honey-flow begins, any colony which has not yet filled its hive with brood and honey may be contracted by having the combs which are not occupied removed and replaced with "dummies" or blocks of wood the size and shape of a comb. This prevents the bees from expanding their living-room sidewise and forces them into the supers. If the combs below are left in their places, the bees will fill them principally with honey, before going into the supers. This principle of contracting the brood-chamber to hasten the storing of honey in the super is all right when one wishes to see how much honey he can secure from his bees, without regard to how much feeding he will have to do in the fall to get his colonies up to the winter weight. The writer prefers not to be greedy any more, but to let the outside lower combs be filled solid with the best honey there is, which is none too good for the bees in their long winter confinement. Buckwheat honey may be all right for winter stores where no honey-dew is stored along with it, but that's not in Victoria county, as some bee-keepers have learned to their sorrow during the past two winters.

It seems early to be talking about getting ready for winter, but if you are going to be a successful bee-keeper, there is one thing you must keep in your mind in all your season's work, and that is, that there is a winter coming. Don't think that because honey is rolling in in June that it is going to keep on rolling until the fall. If you do, you will render yourself liable to disappointment. Clover lasts about 6 weeks, as a rule. Basswood follows it (sometimes) and lasts from 2 to 10 days. When basswood is done the white honey-flow is past.—E. G. HAND, in Canadian Bee-Journal.

Fenelon Falls, Ont.

Honey as a Health-Food,—This is a 16-page honey-pamphlet intended to help increase the demand for honey. The first part of it contains a short article on "Honey as Food," written by Dr. C. C. Miller It tells where to keep honey, how to liquefy it, etc. The last part is devoted to "Honey-Cooking Recipes" and "Remedies Using Honey." It should be widely circulated by those selling honey. The more the people are educated on the value and uses of honey, the more honey they will buy.

Prices, prepaid—Sample copy for a 2-cent stamp: 50 copies for 70 cents; 100 for $1.25; 250 for $2.25; 500 for $4.00; or 1000 for $7.50. Your business card printed *free* at the bottom of front page on all orders for 100 or more copies. Send all orders to the office of the American Bee Journal.

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Empty Comb, Not Empty Space, Prevents Swarming.

Listen to what that veteran bee-keeper, Moses Quinby, wrote: A large amount of room filled with empty comb will entirely prevent swarming; and years of experience and experimenting has proven that Mr. Quinby was right. Let me illustrate this thing for you a little further: Let a strong colony occupy a dry-goods box, the same being 4 feet square on the inside, they having a space of only about 2,000 cubic inches occupied with comb, and that colony will swarm, notwithstanding all the room there is in the box. But if the whole box is filled with comb, no swarm will issue under the conditions described. —G. M. Doolittle, in Gleanings in Bee Culture.

Breeding for Non-Swarming.

At the convention of Victorian apiarists, the prevailing opinion seemed to be that much could be done by proper selection toward breeding out the swarming impulse. W. Garrett was reported as having a colony that had not swarmed for 2 years, and by breeding from that colony he reduced swarming to 5 percent. H. L. Jones said that 20 years ago he was frantic through chasing swarms, and has no trouble now, through rearing his queens under a non-swarming influence. Mr. Bolton said that by rearing queens out of the swarming season he had almost reached a non-swarming strain.—Australasian Bee-Keeper.

Hutchinson and Late Extracting.

Editor Hutchinson has become an advocate of leaving extracting-combs on the hive till the close of the season, and is quite enthusiastic over it. He says, "It is then perfectly ripened and all sealed over, and has a body and flavor I never dreamed until I put this method into practise."

As to having the honey warm enough to work well, he says:

"Honey warmed up artificially to as high a degree as it will bear without softening the combs too much, can be extracted quicker and cleaner than honey as it usually comes from the bees."

He thus gives particulars as to heating, in the Bee-Keeper's-Review.

"Last year I heated up the honey by means of a coal-stove; this year we are using a Perfection kerosene-oil heater; and it *is* perfection. It is the first oil-burning stove I ever saw that would not smoke. It has a cylindrical wick, and just above the wick is a round plate of iron called the 'flame spreader,' and the wick is turned up until it strikes this 'spreader,' when it can go no higher, and it won't smoke and can't be made to do so. One end of the honey-house, or cellar, is partitioned off, making an 'oven,' as we call it, large enough to hold 50 or 60 supers. We fill this up at night, light the stove just before we go to bed, and turn the wick part way up, so that the temperature at the top of the room will stand at about 100 degrees. In the morning we re-fill the stove, turn it on full blast, and go to extracting, taking the first supers from the top of the room. As some of the piles are lowered, more supers are taken from other piles and added to these, thus bringing more honey up into the heated 'zone.' As fast as there is vacant room, more supers are brought in, and sort of a routine is followed whereby one always has hot honey to work; and more a-heating. It uncaps so easily, extracts so easily, and strains so easily."

Several Queens in One Hive Without Excluder.

First, prepare a small box, about five or six inches square, by boring a one-half-inch hole in one end. This you will for the present close, then remove a part of its two sides and cover with wire cloth so as to ventilate it well. This we call our introducing-box. Take this box and a common queen-cage to the colony to which you wish to introduce your choice queen, or several of them, in fact; remove its combs and put its queen, without any bees, into the queen-cage you have. While doing this shake about a pint of bees of the colony into the introducing-box. Close it and take all their combs from the colony. These can be placed on top of almost any hive until next day. The hives now made broodless, fill about half full of combs containing some honey *but no brood*. Leave the colony alone until about sundown, after which it will show distress over the loss of its queen and brood. Now take the box of bees to the honey-house, and at the same time the queen, but don't set them near each other. The bees in the little box will soon miss their queen and have lots of trouble.

After they have been confined about five hours prepare some warm thin honey, placing it in a dish so that, by laying the box on one side, the bees can easily reach the honey through the wire cloth, but can not daub themselves with it. Leave them this way until you are sure that every bee in the box is as full of honey as it can be, then give them a little shake and remove the cover from the hole in the end of the box (remember it is about five hours since they were confined in the box), and let run in any number of queens you wish, including their own mother. Now return them to their dish of honey so they can help themselves to all they can eat until about sundown; then take this introducing-box with its bees and queens to the hive from which you took the bees and their queen in the morning; set them to one side and feed the colony all you can induce it to eat. Remove some of its combs and pour in some of the honey you have been feeding to the bees in the box. Shake some of this honey out of its combs on these bees, so every one will soon be full. Now remove the cover of the introducing-box and set the box in the hive alongside the combs. Close up the top of the hive, and in the morning all the bees and queens will be clustered on the combs, and some of the queens will have commenced to lay. You can now give them the brood you took away from them the day before, or let them fill their combs with eggs, which five queens will do in three or four days. That is all there is of it.

You now have the colony all together with their brood and their mother-queen, and as many other queens as you care to have in one colony. There has not been a queen balled or injured in any way.—E. W. Alexander, in Gleanings in Bee Culture.

Root Routs Robber-Bees.

It is not to the credit of a bee-keeper that he allows conditions that induce robbing; but sometimes a case will happen even with the most experienced, and when bees have a good start at robbing it is not the easiest thing to stop them. Editor Root has a plan that would seem to fit the most desperate case. He says, in Gleanings in Bee Culture:

"Very lately we have found a remedy that does away with the whole trouble, and that, too, within a very few hours. This consists simply of the use of a robber-trap. This is nothing more nor less than an ordinary hive having a contracted entrance and a bee-escape on the inside, so placed that bees can pass in readily but not out. A wire-cloth cone, or, perhaps, better, a regular Porter should be used.

"We will assume that a bad case of robbing has suddenly developed in which the colony or nucleus is nearly overpowered if not entirely so. If the attack is confined to the one colony, the problem is much simpler. In that case we remove the attacked hive immediately, and put it down cellar with the windows all darkened but one, so that the bees that do not belong in the hive can escape and go back. On the stand of the hive of the colony removed we put the hive with the bee-escape on the inside of the entrance, or what we will call our trap, when, presto! all the robbers will rush into this hive and be imprisoned. It is only a matter of an hour or so before they are all caught; and what was once a perfect uproar in the yard will now be as quiet as though nothing had eved happened. When this condition prevails, or toward nightfall, the attacked colony that was put in the cellar is put back on its own stand, but with its entrance contracted down to a space so that only one bee can pass at a time. A frame of young bees is shaken into the hive, and nearly all the

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honey is taken away, if any is left, and in its stead will be given a cake of hard dry candy. The robber-trap, with its gang of mischief-makers, is now put down cellar where it will be cool, and where there will not be much danger of suffocation. Strips of broken sections, or any pieces of wood not more than one-eighth inch thick, are now carefully slid between the cover and hive-body containing the confined bees. One of these is placed at each of the four corners. This will make a gap of one-eighth inch between the cover and the hive, or a crack just too narrow for the bees to pass through. This is to give the bees ventilation; and a cellar is just the place to put a lot of confined bees. After being confined for two days they may require to be fed. We would advise keeping them shut up for a week, or better, take them to an out-yard or some location about two miles away from the scene of their recent powwows. Give them a queen or queen-cell, and let them start house-keeping."

Send Questions either to the office of the American Bee Journal, or to
DR. C. C. MILLER, Marengo, Ill.
Dr. Miller does *not* answer Questions by mail.

Feeding Back Honey in Shallow Frames

1. I have a number of shallow frames of honey, and no extractor. I wish to feed them back to the bees. What is the best way to do it?

2. Some of these frames, which were left in hives and put in a room upon being taken from the hives where they were made, have become infested with wax-larvæ. I have fumigated them with bisulphide of carbon. Will it be all right to use these to feed back?

IOWA.

ANSWERS.—1. I suppose the frames are the same in size as those of the brood-chamber, only not so deep. While it would be better if they were full depth, it will work very well to use them in place of full-depth combs, putting them in at the sides. Very likely you can not thus dispose of them all this fall, but they will come in very handy in the spring, when you will take out any combs that are emptied, or nearly so, and put in shallow ones. Of course, you must look out that they do not get too close to the brood-nest, for it would make trouble if brood should get into any of them, and they must be removed before the queen has a chance to lay in them.

2. Yes.

Moving Bees—Preparing for Winter—Increase

Some time ago I bought 5 colonies of bees. What is the best way to move bees from place to place? to prepare them for winter? to increase my stock.

INDIANA.

ANSWER.—If bees are moved as much as a mile there will be little or no trouble about their returning to their old location. If moved only a few rods, with no precaution, nearly all the field-bees will return to the old location upon their first return from the fields. To prevent this, screen them in the hive for a day or so, then just before opening the entrance thump good and hard upon the hive so the bees will be excited and mark the location when they come out. A board placed in front of the entrance for them to bump against when they come out will also help. If you wait till they have stopped flying for a week or so, they will stay pretty well wherever they are put without any precaution.

To answer fully your other questions would exceed the limitations of this department, which is meant to supplement the teachings of a book of instructions in bee-keeping, and not to take its place. If I should take up several pages telling all about making increase, the old subscribers would raise a hornet's nest about my ears for taking up room with stuff that might be copied from any good bee-book. If you cannot have a paper and a book, too, let the paper go and get the book. You'll find a whole lot of things in it, any one of which will be worth the price of the book; and when you have become familiar with it there will still, most likely, be questions you would like to ask, and such questions will be answered most cheerfully in this department.

Getting Rid of Ants

I have a colony of bees that are mixed with black ants. I saw some on the hive last spring as soon as warm weather commenced. Taking off the lid to see if there were any honey in the supers, I found that there looked to be almost as many ants as bees. How can I get them separated without killing the bees? I am a beginner and have read about ants being troublesome, but know no way to get rid of them.

NEW JERSEY.

ANSWER.—The probability is that there is not so thorough a mixture of ants and bees as you suppose, for unless the bees are exceedingly weak they will not allow the ants anywhere inside the brood-nest itself. Very likely you use quilts, or in some other way there is a chance for the ants to find shelter somewhere where the bees can not reach them. When I used quilts, the ants seemed quite fond of making their nests on top of the quilts, perhaps mainly for the sake of the warmth to be found there. With board covers that afford no such protection from the attack of the bees, the ants keep their distance. Logically, the thing to do is to avoid making any such shelters where the bees can not get at the ants.

Sometimes the ants have their nests outside, and annoy the bees by trying to get in. In that case, trace them to their nest, take a crowbar and make a hole into the nest, pour in 2 or 3 tablespoonfuls of bisulphide of carbon, and cover up quickly. If too much trouble to get the bisulphide, gasoline will do some good.

Whether the nest be inside or outside, you may poison the ants. Take 2 thin little boards, put a piece of wood ⅛-inch thick or less (a piece of section is right) between the 2 at each side, and that will allow the ants to get between them but keep out the bees. Now put Paris-green or some other poison mixed with honey between the little boards, but not near enough the edge for the bees to reach it, and place where it will be convenient for the ants.

Ants in Hives

What is the best remedy for ants in bee-hives? OHIO.

ANSWER.—Prevention is better than cure. Have no place in the hive that an ant can go and a bee can not. If the ants have nests outside, pour bisulphide of carbon in their nests. Gasoline will also answer pretty well.

Ventilating Hives—Tiering Up Hives in Wintering—Replacing Brood-Combs

1. To give ventilation to a dovetailed hive on a reversible bottom, would any harm come from sliding the hive backward until there is a bee-space between outside edge of back of bottom and inside edge of back of bottom, or would sliding the hive forward be better?

2. To what extent would you advise tiering up hives for outside wintering, say not more than 2 or 3 high?

3. To utilize all room on my 20-foot platforms next season, is it advisable to place hives 6 inches apart, with entrances alternated north and south?

4. I wish to replace all of the brood-combs next spring with frames of full sheets of foundation, leaving the 2 best combs for the outside ones. Is this going it too strong, provided I do it when fruit-bloom is on? IOWA.

ANSWERS.—1. Sliding back would make the bottom-bars rest on the rim of the bottom-board, and the bees would glue the two together, so sliding forward would be better. When

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working for extraced honey it is a good plan to have an opening above for ventilation, by shoving the upper story forward so as to leave a crack of ¼-inch. Even when working for comb-honey I make use of this kind of ventilation during the hottest part of the season.

2. Except the labor, and the trouble to the bees in changing the location of their hives, I know of no objection to piling up hives 3 or 4 high, and there is some advantage in the matter of heat.

3. That will work, but you will probably find it better to have them in pairs, the first 2 facing north, the next 2 south, and so on. The bees are not likely to make a mistake in getting into the wrong hive of a pair; much more likely to make a mistake in a row alternately facing in opposite directions.

4. Yes, that would be going it rather too strong to ask the bees to give up their brood and start all anew at a time when every effort should be made to increase the force for the coming harvest. Wait till just before the time when there is danger of swarming, and then it will be what is so popular with many, shaking a swarm.

Using Brood-Frames for Extracting Frames—Old Honey-Extractor

I have some American frames about 12x12 inches inside, with a bar across the center, top-bars 1⅜ inches, and notches for bees to pass up through. The swarms were hived on starters in 1905, and the frames have been used for brood ever since. I want to discard them as brood-frames, and had thought of making supers and using them for extracting, over 10-frame Langstroth hives. Of course, the frames would be crosswise, also the supers, and being about an inch narrower than the hives, it would leave an offset at each side for bees to travel over when going up the side of the hive. There is considerable drone-comb in these frames.

1. Would these combs cause the honey to be inferior in any way?

2. Would bees store nearly as much (or quite) as in other extracting frames?

3. Do you think it would pay me to use them for extracting?

4. If I buy a 2-frame non-reversible extractor 25 years old, will I be sacrificing many improvements?

PENNSYLVANIA.

ANSWERS.—1. Honey in those combs ought to be as good as in any combs used for the same length of time for brood-rearing. Generally it is considered that there is no difference between extracted honey taken from new combs and that taken from the very old, black combs. Some, however, who want to get the very lightest honey for exhibition purposes prefer new combs. If you take a very black comb and let it stand for some time filled with water, the water when thrown out will be pretty black, and it is claimed that honey in such combs will also be to some extent colored. But for ordinary purposes the difference is not considered.

2. There ought to be no difference.

3. Yes, but for the sake of having all frames alike many would prefer to transfer the combs into your regular frames.

4. Your question itself suggests that one of the improvements would be self-reversing—a matter of considerable importance. If you do a small amount of extracting, the probable difference in price would over-balance any disadvantage; if you do a large amount, better pay for all the improvements you can get.

Queer Noise Among Bees

What is it that I hear in my Italian bee-hive this time of year? It makes a fuss like a queen. I heard the same noise last spring before I shook a swarm from it. Those bees have always done queer things. Are there 2 queens in there? and are they destroying one?

ANSWER.—Without hearing the noise I cannot say what it means, and possibly I couldn't say if I should hear it. I've often put my ear to a hive and heard the bees making various noises without being able to make anything out of it, except the piping or quahking of young queens when an after-swarm is contemplated. It is, of course, possible that 2 or more queens are present in the case in question.

Bees Troubled With Moth-Larvae

My wife's father has a colony of bees here that are not doing well (Aug. 6). They swarmed along the fore part of July or the latter part of June. I was not here then and the folks did not see them swarm, but I am confident they did swarm, as there were several indications to show that they had. They seemed to be gathering some honey and had quite a lot of bees, some having gone to the super, but they had not stored an ounce of honey in the super, and had been carrying out lots of young bees, in size from the small larvæ in the bottom of the cell to the bees just emerging from the cell. On opening the hive yesterday I found a lot of honey and pollen in the comb, brood in all stages, and 7 out of 8 frames with eggs. The older bees that were carried out seemed to have a sort of white web around them which made them unable to fly, and in some cases almost unable to walk. There were a few moths in the hive last spring, but none in the combs that I could see. I found a few moth-worms under the frames covered over or hemmed in with wax. What is the disease, and what is the remedy for it? The bees do not seem to build up as they should, but there is plenty for them to work on and other bees are doing fairly well now. IOWA.

ANSWER.—The bee-moth is the miscreant that causes the whole trouble, almost certainly. The larva of this pest makes its gallery of silk along the surface of the comb and deeper, and the young bees thus injured are thrown out of the hive by their older sisters. It is hardly fair, either, to say that the bee-moth causes the trouble. The cause is a weak, inefficient colony, and the bee-moth comes in only because the colony is not vigorous enough to resist.

The remedy is a stronger colony, or bees of greater vigor. Italian bees are greatly superior to blacks in fighting off the bee-moth, and if your bees are black, the introduction of Italian blood is the thing indicated. It is also possible that the queen is at fault, either through age or some other cause. The case is worse if there are more combs than the bees can cover.

You may do something to help the bees get rid of the larger worms present. Take out a comb, note where a worm has built its gallery, with the point of a wire-nail pick a hole in one end of the gallery, then start at the other end and pick along till the worm drops out, when you can treat it as your conscience dictates.

Queen Passing Through Entrance-Guard—Swarm Deserting—Introducing Queens

I bought a full colony of Italian bees, which were shipped by express in a shipping-case. As soon as I hived them, off they went. I caught the swarm and hived them again. I saw the queen go in, got almost all the bees in the hive; put on an entrance guard, and a half-hour later all the bees were out again on the same tree. I did not bother with them any more, but before night they all went back to the hive. The next day the same thing happened, and I did not see her any more. The bees went to work. I had put on only starters. Three weeks later 2 frames were fully built and 2 half built, but laying never began. I am sure now that there is no queen at all.

1. Can a queen pass through an entrance-guard?

2. Why did the bees go out after I had hived them in a new hive with foundation-starters?

3. I never use either veil or smoker while I examine the hives, and take the frames out one at a time, and never was stung. Why did they sting me the last time? Just as I had removed the cover they rushed at my face and I got 3 stings.

4. What is the best method of introducing a queen to a queenless colony?

LOUISIANA.

ANSWERS.—1. Not if the entrance-guard is perfect and the queen of normal size. Some have thought that when a queen is not laying, her abdomen consequently smaller than usual, she might get through a perforation smaller than when in full laying. But it is not the size of the abdomen that prevents her passage, it is the thorax. The abdomen is soft and yielding, and when at the largest it will easily flatten out to go through any perforation large enough to allow the passage of the thorax. The thorax is a sort of bony structure which is the same whether the queen is laying little or much.

2. I have no means of knowing, but the most common reason for the desertion in such cases is that the hive is in too warm a place, and too close. Leaving the cover open a trifle helps, also shading and sprinkling with water.

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It also helps to give a frame of brood from some other colony. If nothing but starters are present, the bees may easily desert if everything is not entirely to their liking.

3. Hard to say; there might be something in the disposition of the bees, in the state of the weather, or in your handling.

4. For ordinary cases the usual plan with a provisional introducing-cage is pretty reliable. Somewhat safer is the Abbott plan of caging the new queen in the hive for 2 days without disturbing the old queen, and at the end of the 2 days removing the old queen and allowing the bees to liberate the new queen by eating out the candy. If you want to be entirely safe, put 2 or more frames of sealed brood over an excluder on a strong colony, leave it till all the brood is sealed, then take this brood, *without any bees,* put it in an empty hive, put the queen in, close it up bee-tight, and set it where the brood will not chill. In 5 days it may be set on the stand where it is to remain and a small entrance be opened. Of course, the brood should be old enough so that bees will be hatching out when the queen is put in. These very young bees know no other mother, and will be entirely kind to the queen. One way to keep the brood warm during the 5 days' confinement is to set it over a strong colony with 2 sheets of wire-cloth to prevent communication between the 2 hives.

Breeding Up for Winter—Drones from Mismated Queen—Honey Deteriorating on Hive

1. I have 2 colonies that have had drone-laying queens for at least 6 weeks. Both queens were reared this year. I sent for 2 tested queens and introduced them to-day (Sept. 25), first removing the drone-layers. Both colonies are still strong in bees. By stimulative feeding will the queens breed up to be in shape for winter?

2. Are the drones from a mismated Italian queen still pure Italian, or are they hybrids?

3. A claims that by taking the combs off a hive immediately after they are sealed he can extract more and better honey out of the combs than he can by leaving them on a few weeks longer. B claims that honey does not deteriorate nor grow less in bulk or weight after it is sealed when left on the hive a few weeks longer, or until the end of the honey-flow. ONTARIO.

ANSWERS.—1. Maybe, and maybe not. Something depends upon the length of time since any worker-eggs were laid in the hive. You say drone-laying queens have been present "for at least six weeks." Of course it may have been much longer than that, and all the workers present may be getting pretty old to go into winter quarters. It is also difficult, even with feeding, to get queens to lay at this time of year as they would in the early part of the season. Even so, as the colony is still strong in bees, if they are not too old, the wintering may be successful.

2. It is generally considered that the drone progeny is not affected by the mating of the queen, although some maintain that the blood of the queen may be so affected as to affect the character of the drone progeny but slightly in the direction of the drone which the queen met.

3. Better compromise, and say that the honey will improve in quality by being left longer on the hive, part of the improvement being that the honey becomes thicker, and thus less in weight. Some of the best bee-keepers leave the honey on till the close of the season, believing that the little loss in weight will be more than overbalanced by the gain in quality. Some bee-keepers have done themselves lasting harm by throwing on the market honey not fully ripened.

Kind of Hive, Frames, Honey, Bees, Etc.

1. What kind of a bee-hive would you advise me to use in Norther Minnesota, 8 or 10-frame dovetailed?

2. Are Hoffman self-spacing broad-frames all right for extracted honey?

3. What kind of cover and bottom would you advise me to use? Is the double air-spaced cover all right for the North?

4. What kind of honey would you work for, comb or extracted?

5. Which is the cheaper to produce?

6. Is it necessary to wire frames for extracted honey?

7. What race of bees is best for all-around purposes?

8. What bee-book do you think best for a beginner?

9. How do you increase bees artificially? MINNESOTA.

ANSWERS.—1. Whether an 8-frame or a 10-frame hive is best depends upon circumstances. If you work for extracted honey, take the 10-frame. If you work for comb-honey, the 8-frame may be best. But its small size makes toward great danger of loss in wintering unless it have closer attention than would be given by those who do not make bee-keeping a good deal of a specialty. So it will be the safe thing for you to adopt the 10-frame hive for either comb or extracted honey, unless you expect to give the business very close attention.

2. It is used by many for that purpose, although some object that the shoulders of the end-bars are in the way of the uncapping knife.

3. A double cover with an air-space between the 2 parts is all right for North or South, summer or winter. In winter it is warm, and in summer the dead-air space helps to ward off the heat of the sun. For a bottom-board it is getting more and more to be the thing to have a deep space under the bottom-bars in winter. But if there be a deep space under the frames in summer the bees will build combs down under the bottom-bars. To meet this a reversible bottom-board is much used, one side allowing ½-inch or less in summer, the other side allowing ¾-inch or more of space in winter. Although the reversible bottom-board is my own invention, I no longer use it, preferring a deep space both summer and winter. My bottom-boards are 2 inches in depth, and in summer I fill the space partly with a sort of open-work rack, which prevents the bees from building down, while at the same time allowing them more air.

4. If it were so that comb honey is the best to work for under all circumstances, then all bee-keepers would be producing comb honey, and the same might be said of extracted. The fact that some produce one kind and some the other shows that comb is best for some and extracted for others. I don't know which would be best for you. Possibly you can find out by trying both on a small scale.

5. The outlay for comb is much more than for extracted; but of course comb brings the higher price of the two.

6. It may not be absolutely necessary, but while combs are still new, if you attempt to use them for extracting without having in them wires or some other sort of support, you are likely to break enough combs to pay a big price for wiring.

7. Italians are generally considered best in this country.

8. You cannot go amiss if you have either or all of "A B C of Bee Culture," "Bee-Keepers' Guide," or "Langstroth on the Honey-Bee." If you want still another, you might get "Advanced Bee-Culture," or "Forty Years Among the Bees."

9. Yes, but it's a long story, and there are many ways. After you have got your book and studied up the subject in that, if there are any special questions you have on the subject they will be gladly answered in this department. You will find several pages devoted to the subject in "Forty Years Among the Bees."

Fair Honey Crop.

We have a fair honey crop in this district. The Ideal Hive Tool is light and effective.
JOHN S. SEMMENS.
Prowers, Colo., Aug. 30.

No Honey or Half a Crop.

I got no honey from our California apiaries this year, and about half a crop from the apiaries here in Utah. THOS. CHANTRY.
Ferron, Utah, Aug. 30.

About Half a Honey-Yield.

I have had only about half a yield of honey so far this season. But there is a fine prospect for a fall honey-yield from asters and golden-rod. W. S. FEEBACK.
Carlisle, Ky., Sept. 2.

May be a Fair Fall Flow.

Bees are still bringing in some alfalfa honey. If the weather favors us we may have quite a fair flow from the last of heartscase and alfalfa bloom. G. BOHRER, M. D.
Lyons, Kans., Sept. 2.

Gasoline for Foul-Broody Combs.

Take some combs where the bees have foul brood; uncap them and soak them in gasoline;

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put them in the extractor; throw the gasoline out, and put the gasoline back into the can for future use. I use the combs again after this treatment. I find them perfectly safe to use. I would like every person to try this that has foul brood in the apiary.

W. H. H. STEWART.

Emerson, Ill., Aug. 28.

Poor Season for Bees.

This has been a very poor season for the bees in this part of the country. The fore part of the season was cold and wet so that they have had a very poor chance to do anything. JOSIAH SWINEHART.

West Salem, Ohio, Sept. 10.

Good Fall Honey-Flow.

The summer honey crop here was only a third of a croup, but we are now having a wonderfully good fall flow. I shall get some surplus from golden-rod and asters for the first time for several years. ALLEN LATHAM.

Norwich, Conn., Sept. 20.

Very Little Honey.

I have had 2 swarms from 70 colonies, and very little honey this year. The bees are doing very well now. We live in hopes that they will be better next year.

Palmyra, Mo., Sept. 14. JOSEPH H. BAKER.

Backward Season—No Honey.

This has been a very backward season, and now it is very cool—60 to 65 degrees above zero. The bees ought to be putting in their best licks on Spanish-needle bloom, but there is no honey to speak of so far.

Milo, Mo., Sept. 11. CHAS. M. DARROW.

Poor Honey Season.

This has been a very poor honey season with me. One out-yard of 10 colonies produced 500 pounds of extracted honey, and the other out-yard of 30 colonies, only 280 pounds of extracted honey. The home-yard of 20 colonies will have no surplus honey. L. E. ALTWEIN.

St. Joseph, Mo., Sept. 10.

Poor Prospects for Fall Flow.

We are having very dry weather here, and poor prospects for a fall honey-flow, but most of the bees have plenty of good stores for winter, also a good reserve in the honey-house for feeding in case of need. GRANT ANDERSON.

Sabinal, Tex., Aug. 27.

Bee-Culture Discouraging.

Bee-culture here is very discouraging this year. I have 25 colonies and will not get one pound of surplus honey. The bees are hardly making a living, as there is too much cold and rainty weather in the Ohio Valley.

HENRY LEWEDAG.

Wheeling, W. Va., Aug. 28.

Honey for Local Demand.

The early part of the season was poor for honey, but the last month or so the bees have done well, and there will be more than enough to supply the local demand. Comb honey sells for 15 to 20 cents per pound. This county, I believe, is the banner bee-county in Illinois.

Warsaw, Ill., Sept. 24. PAUL HEISE.

Fall Honey Crop Promised.

I have 98 colonies of bees. The honey-yield was light from clover. There promises to be considerable fall honey at this time, as the flow is about half over. We had a frost late in May, which killed all of the early bloom.

W. A. SWEARINGIN.

Epworth, Ky., Sept. 23.

Sumac—Wormwood—Psoralea.

I send you 3 different kinds of plants, as I would like to find out their names. I have attached a number to each.

Is No. 1 in any way a poisonous plant? The berries of this plant are the same as on sumac, but the leaves are different. It grows to the height of about 6 feet and in bushes.

Is not No. 2 a good honey-plant?

No. 3 grows to the height of about 2 feet, has a smell somewhat like peppermint, has small blue blossoms, and yields quite a little honey, and also grows in bushes.

Stratton, Colo., Aug. 4. PETER BOHM.

[Plant No. 1 is the fragrant sumac—*Rhus aromatica*—and is not poisonous. Several of the sumacs are poisonous. The sumacs are generally good honey-plants.

No. 2 is the Kansas wormwood—*Artemesia Kansana*—and is probably a good honey-plant in common with the wormwoods in general.

No. 3 is the black-dotted Psoralea—*Psoralea obtusiloba*—and as it belongs to the pea family, would naturally produce honey.—C. L. WALTON.]

Light Crop of Honey.

I have had a very light crop of honey this year; and never have I had so much swarming in the month of August in my 30 years' keeping bees. They are breeding strong, and consuming more honey than they are bringing in from the field. J. C. CREIGHTON.

Harrison, Ohio, Aug. 30.

Hard Year for Bees.

This has been a hard year on bees here. But by close attention I have done very well with them. I have taken as high as 100 pounds of surplus honey from some hives. Most of the bees in this country are kept by haphazard bee-keepers, and hardly any of them have secured any surplus at all.

J. W. FERGUSON.

Pierce City, Mo., Sept. 2.

Very Poor Season.

This has been a very poor season here. It was either too cold or too dry, or both.

I started in the spring by purchasing a 3-frame nucleus, which has built up, by feeding, into a rousing-strong colony, but they have gathered no surplus at all this year. They just about made a living, and that is all. I intend to try natural swarming for a few years till I find out more about the business, before making artificial increase.

Curtis, Okla., Aug. 12. J. W. JACKSON.

Starting with Bees—Catnip.

Only one year ago last spring I put my attention to bee-culture, having been keeping bees in what might be called a pot-luck, haphazard way. To start with I had 14 old blacks and bought 4, making 18. I then bought 2 nuclei of the so-called Red-Clover Italians, and went to Italianizing my black bees by the introduction of Italian queens, changing 10 of them. In the fall I had increased to 39 colonies, with a surplus of 800 pounds of section honey. I then put 5 colonies in the cellar for wintering, leaving the balance on the summer stands with winter protection.

My winter loss was 2 in the cellar, and one colony out-doors, leaving me 36 to start with last spring—22 blacks and 14 Italians. Only 3 of the blacks gave me any surplus, and none of them swarmed. I have since, for the last 3 weeks, been giving them Italian queens, reducing the blacks to 13, which I will also requeen.

The 14 Italians gave me, up to this date, 5 natural swarms and 2100 pounds of section honey. One swarm that came off May 29 has stored 146 pounds of honey, and will likely fill another 28-section super. The 14 will average over 85 pounds apiece, and are just boiling over with bees. I am now taking off supers and dividing each of a part of them into 2. As to any difference in the different breeds of Italians, I much prefer the 3-band or all-yellow small bees to the long-tongued Red-Clover strain, for work and hustle. The small yellow ones are hustlers, and seemingly more hardy and prolific.

I have hit upon a shade or protection from the hot sun by planting a hop-root at the sun-side of each hive, which runs up on poles about a foot above the top of the hive, and as the shoots come out, I twine them in and soon have a perfect shade from early in July. And they are now full of hops, making a fine show.

Last summer, just after harvest, I set out 1000 catnip plants in rows, 3 feet apart, and have cultivated until too large to get through this season. On July 15 it began to bloom and has been in continual bloom ever since, and will be till frost takes it. There are new shoots coming out all the time, till now it has as high as 300 or 400 heads on one plant, and is just swarming with bees from as early as 5:30 in the morning till dark in the evening, which is not the case with any other honey-plant I know of, some yielding nectar only in the forenoon. And the plants will last at least two seasons if not three, and still longer. I have now set out for the next season over another thousand. Some one said that it would not pay to cultivate pasture for bees alone, but I think he is mistaken.

As to other honey-plants and nectar-yielding sources, we have basswood, some white clover, smartweed, and a large amount of sumac, which is a large part of our bee-supply. There is plenty of golden-rod, but the bees seldom work on it. There will also be quite a crop of the fall asters—blue and white. Our buckwheat doesn't seem to yield much nectar. There were only about 3 or 4 forenoons of the bloom. W. S. WILLIAMS.

Martha, Pa., April 23.

Subscription Price Now 50c a Year

On July 1, 1907, when we decided to change the American Bee Journal from a 16-page weekly to a 32-page monthly publication, we reduced the price from $1.00 a year to 25 cents. We have since discovered that the 25-cent rate was entirely too low, in view of the kind of a bee-paper we are making every month. We do not wish to lower the standard now, and as labor, materials of all kinds including white paper, etc., have advanced in cost, we feel that the best thing we can do—in fact, the only thing to do—is to put the subscription price at 50 cents a year; in Chicago, 75 cents; in Canada, 60 cents; and in all other countries in the Postal Union, 25 cents a year extra for postage, or 75 cents. These new rates began with September, 1907.

We are sure that our hosts of readers and friends will feel we are doing the right thing in this, as they certainly would not want us to continue at too low a subscription price. At 50 cents a year, this 32-page copy would cost the subscriber only about 4 cents—two 2-cent stamps—surely cheap enough, when its valuable contents are considered. Why, "Dr. Miller's Question-Box" alone is worth many times the subscription price, to say nothing of all the other valuable departments.

It is our intention to keep the old American Bee Journal at the head of the procession, where it has been for so many years. And to do this we will need the hearty co-operation of all our readers. There are yet thousands of bee-keepers who have never heard of the American Bee Journal. Many of them are your neighbors; can you not show them what they are losing by not having it every month?

On another page we offer many useful things as premiums for getting *new* subscriptions. We will be pleased to mail sample copies to any names and addresses of bee-keepers that may be sent to this office. If every present subscriber would send in just one new subscription during this month, by Nov. 1st our list would be doubled. Why not do at least that much to help along a good cause—your own cause? We are ready to do our part—will you, dear reader, not join with us in putting the monthly circulation of the old American Bee Journal up to where it ought to be?

Pennsylvania Convention

The 4th annual meeting of the Pennsylvania State Bee-Keepers' Association will be held at Harrisburg, Oct. 29, 1907—the day before the National—in the

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Capitol building. The first session will convene at 1 p.m., and be devoted to business. In the evening there will be an informal meeting without any fixed program.

The National and the U. S. Hotels, and the Hershey House, have offered to accommodate those who attend the conventions for $1.50 per day. The Y. W. C. A. will entertain the ladies for 75 cents per day.

Owing to the unsettled conditions no reduction in railroad fare will be granted us this year.

A cordial invitation is extended to all who are interested in bees. There will be exhibits of honey, and all are invited to contribute to them.

FRANKLIN G. FOX, *Sec.-Treas.*
Erwinna, Pa.

For Sale—Alfalfa honey. If you want nice honey for the table try a can of Colorado alfalfa honey, $5 a can of 60 lbs. F. O. B.
-3 A. A. LYONS, R. F. D. No. 2, Ft. Collins, Colo.
Mention Bee Journal when writing.

For Sale—40-acre honey, beet, fruit and alfalfa ranch, with 125 colonies of bees. Cheap, if taken soon.
R. S. BECKTELL, Grand Valley, Colo.
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For Sale—200 surplus young tested Red Clover and Golden Queens—50c each. H. A. ROSS, 1709 Upper Sec. St., Evansville, Ind.
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CHOICE TABLE HONEY
Direct from Apiaries, F. O. B. Car. One can (60 lbs.) net $4.25; two cans $8.10.
30—tf CHEEK & WALLINGER, Las Animas, Colo.
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10,000 Pounds of Light Amber Honey for sale—put up in 60-lb. cans, 8c per lb., or 7c per lb. for the lot.
F. J. GUNZEL, Weiner, Poinsett Co., Ark.
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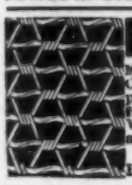

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Honey and Beeswax

CHICAGO, Sept 20.—Receipts are light of honey of all kinds. No. 1 to fancy white clover comb brings 17 to 18c; the off grades 1 to 3c less. Amber, if not too dark, 14 to 15c. Buckwheat about same price when it sells. Extracted white clover, 8 to 9c, according to quality and style of package; amber grades 6 to 7c. Beeswax easier at 30c.

R. A. BURNETT & CO.

INDIANAPOLIS, Sept. 16.—Fancy white clover comb honey sells to the retail grocery trade in lots of 1 to 5 cases at 19 to 20c; No. 1 white clover comb 17 to 18c, actual net weight. White clover extracted in 5-gallon cans sells for 11 to 12c. The best demand here is for white clover honey, but a deluge of alfalfa honey is being sent to this market which sells for about 2c less than above quotations, and if the deluge continues a further break in prices may be expected. Beeswax offered freely, and sells at $35 per 100 pounds.

WALTER S. POUDER.

KANSAS CITY, Sept. 19.—The receipts of honey are more liberal, but the prices remain about the same. We quote: No. 1 white comb honey, 24-section cases, $3.50; amber, $3.25; No. 2, $3.00. Extracted, amber, 7½c; white, 8¼c. Beeswax, 25 to 28c.

C. C. CLEMONS & CO.

TOLEDO, Sept. 21.—The market in comb honey has weakened some, as receipts are equal to demand. We quote: Fancy white comb, 17 to 18c; No. 1 white comb, 16 to 16½c. Extracted, in bbls., 7 to 7½c; amber, in bbls. and cans, 6 to 6½c. Beeswax, 26 to 28c. Owing to high prices honey is not moving rapidly.

THE GRIGGS BROS. & NICHOLS CO.

CINCINNATI, Sept. 21.—The market for honey here for white clover extracted is brisk, selling in 60-lb. cans at 10c; in barrels at 9c. No. white clover comb honey 17½ to 18c. Amber, extracted, 6 to 6 1-2c. Beeswax 32c.

C. H. W. WEBER.

PHILADELPHIA, Sept. 21.—The sales of honey have been quite active in this market during the past week. Bee-keepers seem to have a tendency to hold back their reports as well as their stock, and therefore those who are sending honey to market are getting good prices. Later on, when the early demand is supplied, those shipping honey will be disappointed in not receiving better returns, as during September and October honey is higher than at any other time of the year. We quote: Fancy comb honey in this market, wholesale, 17 to 18c; No. 1 white, 15 to 16c; amber, 14c. Extracted honey, water white, 7 1-2 to 8c; amber, 6 1-2c; dark, 6c. Beeswax, 30c.

We are producers of honey, and do not handle on commission.

WM. A. SELSER.

NEW YORK, Sept. 23.—Comb honey—the demand is good, especially so for fancy and No. 1 white. As the season has been very late, arrivals have been slow, but quite fair lots are now coming into market. We quote fancy white at 16 to 17c; No. 1 at 15c; No. 2 at 13 to 14c. No price established as yet on buckwheat, nor has any arrived. Extracted also in good demand, with prices gradually stiffening up. Receipts are mostly from California, near-by, and West Indies. We quote California white sage at 9c, light amber at 8c, amber at 7c; white clover at 8 to 9c, amber at 7 to 7 1-2c per pound. Beeswax plentiful and somewhat off in price, selling at from 29 to 30c for choice stock.

HILDRETH & SEGELKEN.

CINCINNATI, Sept. 20.—Since our last quotation there is no material change in the honey market, with the exception that the demand is a little better. As yet prices have not reached that high point that many people believe they will. Received this week a car-load of white comb honey which we are selling at from 15 to 16c from the store. This was the first car out of Colorado, and naturally commanded attention, which brought many purchasers. Will have two or more cars to arrive which will more than satisfy the demand, and we look forward to lower prices. Extracted honey is moving as lively as can be expected at this season of the year. Quote white clover in barrels and cans at 7 to 9c, according to the quality; amber in barrels at 5¾ to 7c. Choice yellow beeswax, free from dirt, 30c, and 28c for the darker grades.

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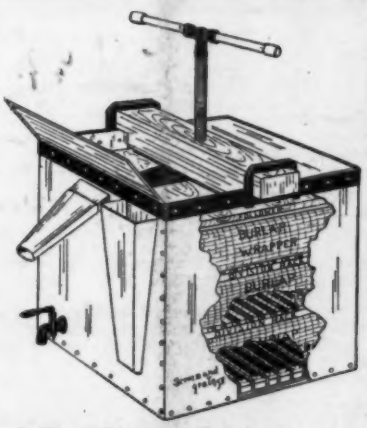

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